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Practical instruction in minor tactics and strategy

John Philip Wisser

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PRACTICAL INSTRUCTION IN

MINOR TACTICS AND STRATEGY

FOR THE USE OF THE REGULAR ARMY AND THE MILITIA

BY
JOHN P. WISSER
FIRST LIEUTENANT FIRST ARTILLERY

NEW YORK
D. APPLETON AND COMPANY
1888

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FORT MONROE, VA., *June, 1886.*

APPROVED AND AUTHORIZED AS A TEXT-BOOK.

Par. 26, Regulations United States Artillery School, approved 1882, viz.:

"To the end that the School shall keep pace with professional progress, it is made the duty of Instructors and Assistant Instructors to prepare and arrange, in accordance with the Programme of Instruction, the subject-matter of the courses of study committed to their charge. The same shall be submitted to the Staff, and, after approval by that body, the matter shall become the authorized text-books of the School, be printed at the School, issued, and adhered to as such."

. . . . . .

By order of Colonel TIDBALL:

CROSBY P. MILLER,
First Lieutenant Fourth Artillery, Adjutant.

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PREFACE.

In the Franco-German War the world was astonished at the thorough knowledge which the German officers possessed of the geography and topography of the field of operations, their familiarity with the principles of minor tactics, and the consequent rapidity of movement of their forces. To-day no European nation neglects the important studies by which this knowledge was acquired, viz., military geography and the solution of practical problems in minor tactics. The officers of the European armies begin their studies in these subjects at the military academies, complete their instruction therein at the schools of application, and at every post and garrison practice the application of the principles of minor tactics thus acquired, and perfect themselves in the knowledge of the geography of their own and surrounding countries by making rapid reconnaissances in summer and studying actual campaigns in winter, and applying to both *practical tactical problems.*

The problems herein contained were simply compiled or adapted from those given to officers at posts, at the schools of application, and at the examinations at the war academies of Europe. The examples may be multiplied indefinitely, and applied to our own country and the campaigns of our own wars, and may thus add an interest to ordinary garrison duty, and serve to impart a knowledge of the country not otherwise attainable.

There is little preparation required for the pursuit of this subject and the continued practice of this system of instruction. The works of reference required are few, and maps may be obtained from the Engineer Department, or foot and mounted reconnaissances may be made at the posts, which will furnish topographical maps sufficient for all ordinary purposes.

The camps of instruction of the militia will furnish ample opportunity for the solution of tactical problems in the field, and but little time will

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be required. During the rest of the year problems may be constructed on the late war, to be solved and discussed at the armories.

The applicatory method of instruction of officers in tactics and strategy was introduced by General von Verdy. His method consisted in bringing out the manifold situations arising in actual war by the continued study of concrete cases, learning from them the nature of war, and, by the mass of positive conclusions arrived at, and methods of execution deduced, developing the characteristics neccessary for the command of troops in the field. This process is tedious, and, though valuable, furnishes simply the requisite *practical knowledge*, but not the requisite *practice*.

One of the methods which has been tried, with a view to practicing officers in the duties that will be required of them in actual war, is Kriegsspiel, a method still used as an auxiliary. There are many objections to it; it requires complex and expensive apparatus and a knowledge of its use, its application is limited, a large amount of time is consumed, and it is liable to become largely a mechanical process; objections which have prevented it from gaining a foothold in this country.

The method here presented deals entirely with practice, it is unlimited in its application, and approaches reality as closely as is possible in time of peace. The direct objects of this practice are to sharpen the intellect, to assist in reaching decisions rapidly and imparting the substance thereof briefly, clearly, and accurately, and to enable the officers to so direct their troops as to carry out the decisions intelligently and properly. It serves not only to *teach*, but also to *examine* the officers on the progress they have made, and, if carefully conducted, will furnish the material for a fair estimate of the value of an officer in the field.

My acknowledgments are due, more especially, to Major-General John M. Schofield, who first inspired me with an interest in this subject by recommending its study to the younger officers of the army nearly ten years ago.

To Lieutenant C. P. Townsley, Fourth Artillery, I am greatly indebted, as without his assistance the necessary maps could not have been reproduced at a reasonable cost.

JOHN P. WISSER.

WEST POINT, N. Y., *March 4, 1888.*

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PRACTICAL INSTRUCTION IN MINOR TACTICS AND STRATEGY.*

WAR is a political act, by means of which a sovereign State attempts to compel another State to meet its wishes. Its direct object is the annihilation of the enemy's forces which can only be brought about by *the battle*, in which the military forces of the two States try their strength. All those measures which relate to the grand field of operations, the direction of the troops toward the battle-field, and the measures taken to reap the rewards of success, pertain to *Strategy*. The movements on the battle-field and in its immediate vicinity, the methods for securing the safety and preserving the active power of the army, on the march, in camp and in battle, pertain to *Minor Tactics*.

The changes in tactics have gradually limited the field of action of strategy and increased that of minor tactics. The line of demarkation can not be accurately drawn, as the two subjects are intimately connected, so that a movement, considered as part of a general plan, may be simply tactical, whereas, considered by itself, it may be strategical.

Drill Tactics have for their object the physical development of the men, their training to obey and execute commands, and their exercise in movements which find application in war. The later drill tactics of Europe encroach on the province of Minor Tactics, and again there is no clear line of demarkation. The tendency has been of late to abolish all movements and exercises which find no application on the march or the field of battle.

Drill, then, improves the material and renders it flexible; Minor Tactics, the A, B, C, of the Art of War, handles the material to the best advantage; and Strategy, the presiding genius, directs the whole toward some good end.

* A paper on this subject, entitled "Practical Problems in Minor Tactics and Strategy," written by the author, was read before the Military Association of the Pacific, in June, 1885.

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That army which is most thoroughly instructed in the Art of War, other things being equal, is the strongest.

The means of instruction may be divided into three branches:

Strategy, which only the general officers need be familiar with.

Minor Tactics, which every officer should be thoroughly instructed in; and

Military Geography, which is essential to the study of both the other subjects.

MINOR TACTICS.

The importance of the study of Minor Tactics as a factor in the Art of War is evident. The changes in the tactics of the last few years have had a marked effect on the Art of War. Strategy has become in a measure a *political* act, and the movements of a battalion, even of a company, have become *minor operations of war*. This important fact is not thoroughly appreciated in our country, and hence the great necessity for the study of this subject is only felt by a few of our officers.

The officers of the European armies are thoroughly instructed in Minor Tactics and Military Geography. The instruction begins in the Cadet Schools and Military Academies, continues through the schools of application for officers, and at every post and garrison practical problems are solved throughout the year, involving the principles of both these important subjects. Even in the English Army these problems are the basis of the examinations for promotion.

The study of these subjects is not limited to the officers; the non-commissioned officers, yes, even the privates, are instructed therein. During manœuvres, when a patrol comes in from an advanced position, each man is questioned as to the character of the country in the vicinity of the outpost, the direction of the roads, the points of importance in the landscape, what he would do under various circumstances.

The study of Minor Tactics may be divided into three branches:

Theory.

Military History.

Practice.

The first includes the elementary tactics of the three arms, the tactics of the three arms combined, and the applications to reconnaissance, outposts, marches, bivouacs, and cantonments. It discusses the principles involved and the methods employed.

The second presents the manner in which the theory has been applied in actual war. Most works, however, furnish information only on Strategy, and little of Minor Tactics is to be learned from them.

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The third is the practical application of the theoretical principles by the student himself.

The study of *military history* is usually carried to excess, while the *practice* is either totally neglected or greatly undervalued.

MILITARY GEOGRAPHY.

The subject of military geography has for its object the consideration of the relations of the geography of a country to the operations of war. It may be divided into two branches:

1. The geographical, or descriptive part.
2. The military, or reasoning part.

The former merely considers the facts as they exist, without discussing their relations to the operations of war. The second contains the author's view as to the influence of the geographical features on the movements of troops

The descriptive part presumes the existence of maps, and these are absolutely essential to a careful study of the military geography of our country. The relation of Minor Tactics also indicates the propriety of having the surveys of our country made by the War Department, as the records should be preserved there, and the proper maps furnished to the officers. Lieutenant M. M. Macomb, in his essay at the Artillery School, has presented this subject clearly, and his experience on the Wheeler Surveys has enabled him to propose an excellent plan for conducting the work.

The experience that officers conducting such surveys gain would be of inestimable value in time of war. It develops their powers of observation in a remarkable degree, it teaches them to read a landscape with wonderful facility, to estimate heights and distances with great accuracy, and to notice objects and marks along a trail, which would enable them to act as reliable guides through the country they have traversed.

The descriptive part subdivides the section of country considered first by means of mountain-chains and streams, elevations being given in absolute measure, so as to indicate climate as well as relative heights. The geology, climate, and general botany of the country furnish important data. The topography of the country belongs to the military part, but a general description of the systems of roads and railroads, together with the main bridges over streams, as well as the general character of the cultivated country and its subdivision by fences, walls, or dams, and the population and products of the various cities and districts form a part of descriptive military geography.

The purely military part considers first whether the general character of the ground favors or impedes the free movement of troops, distinguishes

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defiles, mountains, woods, deserts, streams, and plateaus; and discusses theatres of war, fields of operation, lines of communication, strategic points, and lines of defense.

The importance of the study and its direct relation to the subject of Minor Tactics are evident.

A SYSTEM OF PRACTICAL INSTRUCTION.

The relations of the subject of Minor Tactics have been indicated, and its importance has been discussed. We will now proceed to outline a system of practical instruction adapted to the National Guard as well as to the Regular Army.

It consists in adopting the general position of the troops in an actual campaign, or assuming such a position, and selecting some special duty to be performed by the officer to whom the problem is dictated.

Lectures.—The practical work should be preceded by short lectures on the principles of Minor Tactics and the elements of Military Geography, devoting special attention to the particular points which are liable to find application in the problems. A series of lectures may, for example, be devoted to the discussion of an actual campaign, and the problems may then be derived from the events of this campaign.

The problems hereafter explained may be used in the camps of instruction or the armories of the National Guards, and at the posts of the Regular Army. The commanding officer can either deliver the necessary lectures himself or detail some officer to deliver them.

These lectures should never last more than three quarters of an hour, and should be limited to the important general principles, with a few short and graphic illustrations.

The Field of Operations.—The problems may be solved in two entirely different ways: in the field or in the lecture-hall.

In summer or in fair weather the problems are solved in the field, during reconnaissances (which should be made in the vicinity of every post), or during marches or rides of instruction. The field selected is usually the vicinity of the garrison or some historic battle-field. In this way the officers get familiar with the surrounding country in an interesting way, learn the elements of military geography, and apply the principles of minor tactics in a manner quite as absolutely practical as actual campaigning.

In winter or in inclement weather the problems are dictated and solved in the lecture-hall, the field selected being usually some campaign.

Dictation.—The problem is dictated by the commanding officer to the company officers assembled in the field or in the lecture-hall. Each officer is provided with a map. The maps published by the Engineer Department,

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relating to the battle-fields of the late war, are already at most posts, or can be obtained by application to the War Department. Others can readily be prepared by foot or mounted reconnaissances in the vicinity of the camp or garrison.

In the solution of problems in the field the problem is dictated at that point where the officer is supposed to have been when he received his orders. After dictation the officers are allowed a few minutes to orient themselves on the maps. The situation must be probable and clearly given, the troops should correspond to the ground, and the duty to be performed and the problem should be *simple*, and stated in the regular form of an order.

Each problem should be a model in matter and form. The ear will thus become accustomed to a precise and clear wording. When there are two places of the same name the one referred to should be clearly distinguished.*

The information should be limited to that liable to be obtained in actual service, and the subject-matter should include only the performance of a single special duty. The problem should be solved at once in the presence of the officer dictating it.

It is clear that this method corresponds closely to what would take place in actual war. When an officer receives his orders on the field he has no other guide besides his view of the country and the maps he may possess. Time is an important element in war, therefore he should be able to come to a decision rapidly and execute his movements promptly. A *fair* solution planned and executed in half an hour is better than the best possible if it require too much time.

In the solution of problems in the lecture-hall the same principles apply, although the problems are not considered in such detail as those solved in the field. This method also corresponds to reality, for often an officer receives his orders at a distance from the actual field of action with nothing but a map to guide him, and is required to make his dispositions before reaching the field or before he can see it.

Solution.—The principal points to be considered in the solution, and the order of sequence, are as follows:

1. *The military estimation of the ground.*—This is accomplished by reading the map, and interpreting its main features with reference to the problem: movement in the various orders of march or battle; camping, cantonment, rests and halts; the field of battle, its advantages and disadvantages, etc.

2. *The statement of the leading thought in the execution.*—This is the selection of a plan of action, determined by the general situation and the

* The effect of a mistake of this kind is seen in the case of Howell's Mills in the campaign of Atlanta. Atlanta, James D. Cox, p. 151.

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special orders received, and constitutes the most important and most difficult part of the solution.

3. *The disposition of the troops and the orders issued.*—This is the embodiment of the leading thought, or the measures taken to execute the plan of action, and constitutes a practice in issuing orders.

The first step is to inform the subordinate commanders of the general situation, what is known of the enemy, the plan of action proposed, and such additional facts regarding obstacles, poor communications, water-supply, etc., as may be deemed of importance.

The next step is to give the necessary orders for carrying out the plan adopted. These should be brief, and contain only such general instructions as are necessary, avoiding any detailed directions unless of great importance, and such are best given in the form of advice. The instructions should limit each commander to his proper sphere, explain to him the special object of his movement, inform him of the troops on either side of him, and indicate whence he may expect support.

The principal points to be considered in orders relating to the various duties of the field are as follows:

Measures for reconnaissance and outpost duty, the combination or division of the forces, the general point of direction in a march, lines of march, positions of lines of battle, objective points in attack and defense, points of support, hour of breaking camp or of arrival, objective point of a march, formation adopted for the march, communication between troops, resting-places, lines of retreat, locality of headquarters, dispatches, issue and preparation of rations, sanitary arrangements, reserve of ammunition, the trains, etc.

In the case of the solution of problems in the field more attention is given to the details regarding the combat of the smaller tactical units.

In the employment of *infantry:* The time and manner of passing from the order of march to that of combat, of the formation of the firing line, and of the advance within the enemy's range, the organization and employment of the supports for re-enforcement or extension of the firing line, the time and manner of placing the main body and the reserves on the line.

In the employment of *cavalry:* The collection of information, the prompt delivery of messages, communication between troops, order of formation and precautions during delays and advances, rate of march, attack, fighting on foot, execution and interruption of the combat. Outpost duty by day and by night, on march and in camp.

In the employment of *artillery:* Selection and occupation of firing positions, advance into position, determination of the firing lines, objective and its distance, supply of ammunition, posting ammunition-wagons, cover.

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In *reconnaissances:* Determination of the firing lines in attack or defense, positions of the artillery, positions of troops for special purposes, such as camps or advanced posts; the military valuation of the ground; objects of importance, cover and obstacles.

Written orders should be legible.

As soon as an order is received it should be carefully read and considered, its spirit interpreted, and then carried out promptly.

4. *Graphic representation of the situation at certain moments.*—This practice accustoms the officers to bear in mind the relations of time and space, and enables them to determine at any moment the direction and the shortest distance to any point of the line or column, and to calculate the time required to communicate with any portion.

The time allowed for the solution of the ordinary problem is from one to three hours.

Form of Written Solution.

The solutions executed in the lecture-hall are written in ink on legal-cap paper, those made in the field on paper blocks in lead-pencil.

The first page will be headed with place and date, and contain the following heading:

Tactical Problem No.....

Then follows the statement of the problem, signed by the field-officer who dicated it.

On a new page is written the heading:

Solution.

This is followed by the solution carefully written out, and signed by the officer.

Example.

Fort Canby, W. T.,
March 1, 1885.
Tactical Problem No.....
.....
.....
.....
J. I. R.....
Major, 1st Artillery,
Commanding Post.

Solution.
.....
.....
.....
.....
.....
.....
A. C.....
1st Lieut., 1st Artillery.

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The last page is left blank for the criticism. The pages are fastened together, folded twice in the usual way, and indorsed:

(Post.)

(Date.)

TACTICAL PROBLEM No.....

DICTATED BY:

.....

.....

SOLVED BY:

.....

.....

The tracing is made on tracing-paper, obtaining a few points of reference by application to the map, then sketching in the position by computation. Different positions may be indicated by different colored ink or crayon. Strict attention must be paid to conventional signs.

Each tracing is dated and numbered to correspond with the problem to which it belongs, and signed. It is then appended to the solution.

CRITICISM.

After solution the problem is submitted to the field-officer by whom it was dictated, criticised by him and returned. The criticism should call attention to important points, correct errors, incite to study, and indicate better methods of execution.

THE RELATIONS OF THE THREE ARMS.

The officers should be practiced in the command of troops of all arms of the service, because in future wars the three principal arms will be more than ever united. All considerable bodies of infantry will be accompanied by cavalry, and the latter will be under the orders of the infantry commander. The same is true of the union of infantry and artillery, and of cavalry and artillery. Officers should also be more or less familiar with all the arms, in order that the latter may properly support one another. They should also have some knowledge of the tactics of the larger units in order to conduct the smaller ones intelligently.

The duties of cavalry-officers may be divided into *attack* and *observation*. The former is *action* and is prepared by drill; the latter is *thought* and must be prepared by study. The latter is therefore the more prominent in the tactical problems. The officers must be able to determine what points in the landscape are important to report, what portion will furnish cover, and

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to interpret the indications of the enemy's position, strength, and movements, correctly.

The duties of artillery-officers are limited more particularly to the battle-field.

Organization.

The organization assumed is that of the European armies on the war footing, preserving our own nomenclature. The smallest tactical unit is the *squad*, the strength of which depends upon the strength of the company. Each squad is commanded by a corporal.

Infantry.

Two squads form a *demi-section*, commanded by a sergeant.

Two demi-sections form a *section*, commanded by a lieutenant.

Two sections form a *platoon*, commanded by the senior chief of section.

Two platoons form a *company*.

Four companies form a *battalion*.

Three battalions form a *regiment*.

The subdivisions are numbered from right to left: 1st, 2d, and 3d battalion; 1st, 2d, 3d, and 4th company; 1st and 2d platoon; 1st, 2d, 3d, and 4th section; 1st–8th demi-section; 1st–16th squad.

Cavalry.

Two squads form a *section*, commanded by a sergeant.

Two sections form a *platoon*, commanded by a lieutenant.

Four platoons form a *squadron*.

Six squadrons (and one section pioneers) form a *regiment*.

Artillery.

The battery is the tactical unit of artillery. It varies in composition in different regiments. There are four kinds of batteries:

Foot batteries, in which the officers only are mounted; siege-guns.

Field batteries, in which the officers and non-commissioned officers are mounted, the cannoneers on foot or on the carriages; each battery comprising 6 field guns (*heavy* 3·5 in., *light* 3·2 in.), 9 caissons, 1 forge, 1 battery-wagon, 1 forage-wagon. The carriages are drawn by six horses.

Horse batteries, in which all are mounted; each battery comprising 6 field guns (3·2 in.), 9 caissons, 1 forge, 1 battery-wagon, 1 forage-wagon.

Mountain batteries, in which the guns are transported on mules; each battery having 128 mules.

The Higher Units.

Two regiments form a *brigade*.

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A brigade of artillery is composed of two regiments : first regiment of 12 field batteries ; second regiment of 8 field batteries and 3 horse batteries.

A *division* is composed of 2 brigades of infantry, 2 battalions of rifles, 4 squadrons of cavalry, 3 batteries of artillery, 1 division ammunition train, 1 division sanitary train, 2 sections supply train.

A division of cavalry is composed of 2 brigades, 3 batteries of horse artillery, 1 division ammunition train, 1 division sanitary train, 2 sections supply train.

A *corps* is composed of 2 divisions, 5 batteries of artillery, and the necessary pioneer and engineer troops. Large bodies of cavalry, a brigade for instance, may be attached to a corps by the commander-in-chief, temporarily or permanently. The corps commander may also unite the divisional cavalry for special purposes.

Strength of the Subdivisions.

Corps, 50,000.		Division, 16,000.
Infantry.	*Cavalry.*	*Artillery.*
Brigade, 6,000.	Division, 5,000.	Regiment, 4,600.
Regiment, 3,000.	Brigade, 2,500.	Battery, 200.
Battalion, 950.	Regiment, 1,250.	
Company, 230.	Squadron, 170.	

A little consideration makes it evident that this method is eminently practical. When an officer receives orders in the field to execute a certain duty, there are generally a few correct ways of doing what he is required to do. There are other duties to be performed in war besides *fighting*, and these other duties involve more real principles, as a rule, than the fighting itself. When an officer is ordered to make a forced reconnaissance, he knows no more of the enemy's doing than he does in these problems, and his execution should be such as to leave him best prepared to meet the enemy, *no matter what the enemy does.* But, aside from this, there is no limit to the suppositions you may make on the enemy's action and movements, therefore the method is not open to the objection that we are considering the enemy as inactive.

The method may be made still more practical by taking troops and actually executing the movements.

The system of practical instruction can then be carried into effect at once at all posts, large and small, and can be made a subject for inspection by the inspecting officers just as much as drill is now ; indeed, drill should be combined with minor tactics to give it a practical meaning.

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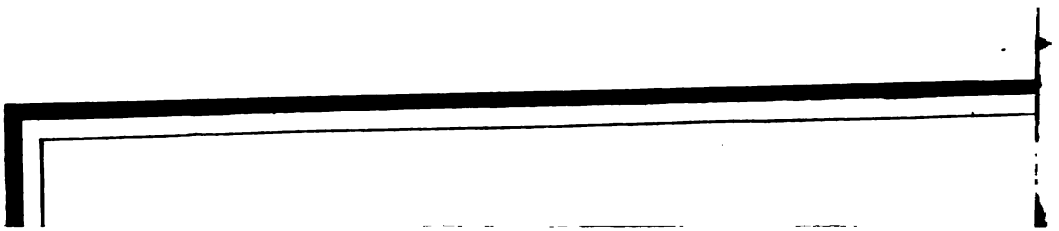

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EXAMPLES.

We will now proceed to illustrate the method proposed by three examples:

I.

The first problem involves only the simplest principles of the elementary tactics of infantry. The commanding officer of a post in the vicinity of Franklin, Tennessee, delivers, say on Monday, a lecture lasting three quarters of an hour, on the proper formations of the battalion in the line of battle, the material for which may be found in Clery's "Minor Tactics" (p. 128 to p. 131), or in Waldstätten's "Die Taktik," Meckel's "Elemente der Tactic," or in the French tactics, "Les Manœuvres de l'Infanterie."

He also delivers, say on Tuesday, a lecture on military geography, including, *first*, the purely geographical features of the country about Franklin, natural and artificial, such as elevations and depressions, water-courses, forests, roads, bridges, fords, cultivated and open ground, walls, fences, and villages; *secondly*, the military relations for manœuvring troops, such as the influence of open and wooded country, slopes, road defiles and streams, and the selection of lines of position and lines of advance.

He then takes his officers, say on Wednesday, to the point of intersection of Main Street with the Columbia Pike, and dictates the following problem, which the officers write in their note-books. He then allows them ten minutes to orient* themselves on the maps, with which they are provided. Each officer, in turn, is then asked what dispositions he would make at each separate distance from the enemy. The commandant corrects or approves, and sums up the result reached. The officers proceed to each new position as the problem advances. The entire solution will not require an hour.

Situation.—The enemy occupies the heights to the southeast of Franklin.

To attack this position the main body of our infantry is stationed along the southern border of Franklin; the artillery combat is over; the 3d Battalion is stationed, deployed in line, its right resting on Main Street.

Problem.—At 11 A. M. the entire line of infantry is ordered to advance to the attack; the 3d Battalion being directed on Dr. Bergin's, Its zone of action is limited on the right by Main Street and extending to the left some 450 paces.

Subject-matter of the Solution.—The execution of the advance and attack up to 400 paces from the enemy's line.

Tracings of the formations of the Battalion at 1100,× 800,× 650,× and 450.×

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* *French*, orienter; *German*, orientiren.

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Solution.—The Battalion is stationed in the outskirts of Franklin, under cover, at 1,400 paces from the enemy.

The ground in front is completely under the fire of the attacking parties.

All deep formations will increase my losses.

I conclude, therefore, to apply my forces with the broadest front and the least depth.

In order to economize the fire in each company, and to gradually increase its effect, I will begin the advance with three companies deployed in line, the left company remaining in reserve.

The development up to 400[x] from the enemy, where a gentle reverse slope to the north affords cover from direct fire, is as follows:

1. The three companies gain ground to the front, deployed in line without a firing line, by successive bounds of about 100[x] each, up to 1,200 paces distance.

The reserve company supports the advance by volleys, the elevation of its position permitting this.

2. At 1,200 paces each company deploys a section as firing line, and gains, without the advance of sections of support, three successive bounds of about 100 paces each.

The firing line is now at 700 paces from the enemy.

3. The enemy's fire is becoming very effective, and the movement requires an impulse to the front.

A section of the center company, deployed in line, following the firing line as a reserve, breaks through the latter and rushes another 100[x] to the front.

Both wings support the advance by their fire and join in the attack when the subdivisions of the first advance reach the line of fire.

The firing line is at 600 paces.

4. The increased effect of the enemy's fire necessitates more substantial assistance, hence one section from each of the flank companies is applied to strengthen the line and to aid the advance.

The firing line is at 500.[x]

5. The advance becomes slow and wavering, and the firing line requires at various points an element of impulse; in each company, therefore, a subdivision is designated to break through the line and gain the cover of the reverse slope south of the creek.

The attack is temporarily suspended at this point; the resting sections retire 20 paces behind the firing line—the Reserve, which, after passing the point 700 paces from the enemy, gradually diminishes its distance from the line, closes, in company front, to 30 paces behind the left wing.

The firing line is at 400[x] distance.

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II.

The second problem is intended to illustrate the method applicable in *rides of instruction.* It involves the principles of reconnaissance with cavalry. The commanding officer of a cavalry post in the vicinity of Cassville, Georgia, has delivered a few lectures on forced reconnaissances and the military geography of the country about Cassville.

Situation.—The following situation of the troops is assumed :

The 1st Brigade of the 20th Corps has occupied Cassville and the heights to the east. The 3d and 4th squadrons of the 9th Cavalry are attached thereto.

The 2d Brigade is encamped to the east of Branson's Mill.

The 3d Brigade on the heights near Cass Station.

The 4th Brigade and the corps artillery reserve at New Hope Church.

The 2d regiment of Cavalry (3 squadrons) to the west of the road Cassville-Salacoa, near Drake's.

Corps headquarters at New Hope Church.

Problem and Solution.—At 5 A. M., on a clear day, Colonel S. rides out with his officers on the road Cassville-Salacoa, to the place where the 2d regiment of Cavalry was encamped in the forks of the roads Cassville-Salacoa and Cassville-Branson's Mill—the 2d squadron was detached. Each officer has an orderly with him. Colonel S. orders the officers to dismount, collects them about him, and dictates to them as follows :

" We belong to the 2d Cavalry. It is 2 A. M.

" I am just leaving corps headquarters, where the commanding general gave me the following orders :

" ' There is no longer any doubt but that the head of Hardee's Corps arrived at Kingston last evening.

" ' Reports agree that Hood's Corps is at present *hors de combat,* and can not immediately reappear in sight of Cassville.

" ' At 4 o'clock I shall cause the corps to break camp, the 4th Brigade first, and order it to march toward Connesenna Church against Hardee's Corps.

" ' To mask the entire movement and to clear up the ground to the Etowah, you will send forward at 3 A. M. two squadrons, along both sides of the road from Howard's to Kingston, under the command of Lieutenant-Colonel G.

" ' The Lieutenant-Colonel will direct his dispatches to the headquarters of the 4th Brigade, which will march from New Hope Church at 4 o'clock, and take up its first position on the plateau southwest of Connesenna Church, on both sides of the road Woodland-Howard's.

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"'A third squadron will march with the 4th Brigade, the 4th and 5th squadrons will remain with the 2d Brigade, which will break camp at 3.30, and march up past Alexander's, southeast of Woodland.

"'The 1st Brigade will remain at Cassville with two and a half squadrons to observe the roads leading in the direction of Hood's Corps.

"'The 3d Brigade will leave a platoon of the 9th Cavalry to observe the passages of the Etowah at Island Ford and Gillems.'

"The officers will write this order in their note-books."

After an interval of ten minutes, Colonel S. proceeds:

"Gentlemen, put yourselves in the place of the commandant of the two squadrons ordered to reconnoitre toward Kingston.

"It is 2 A. M., in camp all is quiet, the horses have not yet been fed; at 3 o'clock you must break camp. What must take place before 3 o'clock?"

After several minutes' pause, Colonel S. requires one of the officers to answer; he will state accurately what takes place with reference to ordinary duty and food and fodder.

In case he forgets to mention some point, or commits an error, Colonel S. asks another officer to correct him, to impress on the officers the fact, that, *together* they know the entire subject, thus encouraging discussion among them.

Colonel S. then proceeds:

"Gentlemen, look at the map; what kind of ground are we to operate on; what relation does it bear to the problem before us?

"You are allowed ten minutes to think the matter over."

At the expiration of this time one of the officers is asked to state his answer, then another, and so on.

Each will probably bring out some important point. After all have spoken, Colonel S. calls attention to the correct and the incorrect statements, and gives in conclusion his own answer, as thus:

"Mountainous country, largely covered with clumps of woods.

"East of the road Howard's-Kingston the view is limited. From the hill west of Karr's, and the hill above Morton's, a good lookout can be obtained.

"The slopes moderately steep, we shall be able to manœuvre freely, but must be careful, as the ground favors surprises.

"To the Etowah the declivity is steep. It flows as far as Kingston in a ravine-like valley, then the heights retire somewhat and become lower, but remain steep. No fords except at Island Ford.

"At Howard's there is a ravine-like valley which divides the field into two parts, the more westerly of which is most exposed to view, and furnishes cavalry freedom of movement in march and battle."

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Colonel S. then puts the question :

"How will you carry out your orders? You are allowed fifteen minutes' time."

After the expiration of this time one after another is required to state his answer.

Colonel S. then gives a *résumé* of the best parts.

"According to your answers the following is the *leading thought* deduced :

"We must advance rapidly and with a broad front. When we arrive on the Etowah we will take position at the bridge and ford there.

"Many clumps of woods and rolling country, hence precautions against surprise, and I can not personally conduct all the parts.

"We will be least liable to meet the enemy's outposts in the section east of Howard's, more probably in that to the west, but most probably in the defile itself.

"But the advance in the defile will be checked when threatened from the heights above, hence a strong patrol will be sufficient in the defile. The subdivisions will find greater freedom of motion and action on the crests.

"The two squadrons I will divide into two groups. A half-squadron I assign to the main road and the section east of it, and commit to it the duty to establish communication with Island Ford. It will ride over McDonald's.

"With one and a half squadrons I will move over Hall's-Connesenna Church into the western section, and proceed with flankers over Proctor's to Eve's Mill.

"My road is somewhat longer though better than that of the half-troop, so that I shall be better able to take a steady trot. But the half-troop, after arriving east of Howard's, will not advance until I have passed Howard's on the west and arrive nearly on a line with it.

"We can be on the Etowah by 4.30, and will then have a point of support in the 4th Brigade, the head of which will have arrived at this time on the height north of Howard's, and we can then count on the troop of our regiment which was ordered to march with the brigade."

These are the considerations from which the orders to be issued will result.

The problem may be solved in several different ways—e. g., to ride with both squadrons over Hall's to Connesenna Church, or over McDonald's, and there divide the command. But there is rarely time, and it is unnecessary to worry about attaining the *best* method ; the more plans are considered, the more uncertain one becomes. A *fair* solution well executed will be quite sufficient.

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"We have now decided *what* is to be done, and the question remains, *how* is it to be done?

"Gentlemen, you will write on a sheet of paper the orders which you, as commandant of the two troops, would give in presence of the assembled officers. Fifteen minutes will be allowed."

The orders are read and discussed. The accepted order will read:

"We will divide into two groups.

"I will operate with the 1st and one half of the 3d squadron over Hall's and Connesenna Church in the section west of Howard's, between Proctor's and Howard's; the other half of the 3d squadron, under Captain W., in the section between Howard's and Island Ford, including Kingston.

"Captain W., you will ride over Price's and McDonald's toward Howard's and then turn to the left; you will keep the main body of your command on the crest east of the highway until you arrive in the vicinity of Kingston, and keep a patrol in advance on the highway, which will be flanked on the heights west of the road by several horsemen with a view to establishing communication with me.

"You will establish communication from McDonald's with the 9th Cavalry at Island Ford.

"If you succeed in reaching Kingston, you will secure it at once. I will ride with my column over Hall's and Connesenna Church. When you arrive on the height east of Howard's, in case I have not yet arrived on the heights opposite you, halt there with the main body of your command until I am in line with you.

"Captain D., send an officer and three men at once over to New Hope Church; he will wait for us at Morton's, on the road to Connesenna Church, and meanwhile observe the ground in the direction of Kingston.

"He will probably meet an outpost of the 4th Brigade at Morton's.

"On the way there he will report to the brigade commander and notify him of our march."

These are all the orders necessary before marching. The Colonel himself rides with the one and a half squadron, and further dispositions affecting this column will not be necessary until it has passed the outposts of the 4th Brigade. Until then the column is closed.

Colonel S. then gives Captain D. the following directions:

"Captain, you are commandant of the one and a half squadron, and will ride with Lieutenants Sc., McC., R., and A. over New Hope Church-Connesenna Church, into the section assigned to this command and discuss with the officers during the march the manner in which the column will march, where and how, how it will protect itself, how keep up the communication.

"Carry out the work as rapidly as possible, and mark the principal

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patrols by officers (e. g., those over Proctor's) who will ride exactly where the patrols are to ride.

"One of the officers will go to Wooley's Bridge, to Merkerson's Ferry, and to Eve's Mill.

"After passing one quarter-hour in the valley you will assemble at the cross-roads Kingston-Woodland and Howard's-Proctor's.

"I will be there with the other officers at 9 o'clock."

After comparing watches, Captain D. rides off with officers designated.

The rest, Captain W. and Lieutenants Q. P., K., H., and F., are directed to dismount, and Colonel S. orders:

"Mr. Q. P., you will represent my middle patrol. We will move at a walk for a while, do you go at a trot over Price's and McDonald's, and wait for us at the cross-roads on the height west of McDonald's."

Later, as we are passing Hooper's, Colonel S. orders K.:

"Ride through the valley between Price's and Hall's to the crest of the hill of Seay's, remain there till you see the detachment of Captain D., then ride to the height east of Howard's to hunt me up. I will go there from McDonald's."

At McDonald's Colonel S. orders H.:

"Ride direct to Island Ford to inform the 9th Cavalry of our advance.

"Await further orders at the Ford."

After finding A. P. at the cross-roads, and being informed by him that at 7.30 the detachment of Captain D. approached Morton's, Colonel S. halts at a point about half-way to Howard's, furnishing no outlook, causes the maps to be examined, and asks: "Where are we now?"

As soon as A., P., and F. have found the place, Colonel S. dismounts and writes the following order:

"Between McDonald's and Howard's at 7.45 A. M.

"Sent by Lieutenant F.

"Lieutenant H., you will advance with your detachment direct to the cross-roads Kingston-Woodland and Howard's-Proctor's. At 9 o'clock you must be there with F."

Colonel S. orders F.: "Ride with this order direct to Island Ford"; and rides on.

When all have assembled at the rendezvous and have dismounted, Colonel S. puts the question:

"Mr. Sc., you went to Eve's Mill; what did you see there?"

He is allowed to relate. The others are questioned in the same way. Colonel S. then dictates the following, which is copied in the note-books:

"You are commandant of the two squadrons. At 8.30 o'clock a staff-officer of the 4th Brigade comes up and addresses you, saying:

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"'I am directed by the General to inquire of you as to the appearances of the Etowah Valley between Island Ford and Eve's Mill.'"

Colonel S. proceeds:

"You have heard the report; what sort of a description will you furnish the staff-officer?

"Write it on a leaf of your note-book."

When completed, the leaves are torn out and handed to Colonel S.*

Colonel S. orders the officers to mount, and rides with them to Wooley's Bridge, halts there, and makes the following supposition:

"You are sent by Captain D. to this place to secure possession of the bridge until the advance posts of the infantry of the 4th Brigade arrive.

"The half-squadron of Captain W. has gone to Kingston, and is occupied there.

"Just as you reach the bridge, several hostile horsemen become visible on the heights behind the opposite shore.

"What will you do?"

The first question that arises is: Will you proceed over the bridge? At present it will not be safe. But the enemy, and first of all his cavalry, must be prevented from crossing.

The next point for consideration is: Will you defend the bridge by small-arm fire simply? Would this be applicable? How would you take up your position, since the ground near the bridge is commanded from the opposite bank? Where would you put your horses? Where the skirmishers?

There is no time to attempt the destruction of the bridge. A barricade may be constructed if there is a country wagon in the vicinity, or with harrows or plows from the fields, or vegetables or hay may be carried from the stacks in the fields to the bridge; and, if the hostile detachments make demonstrations and threaten to advance, set it on fire.

Colonel S. requires the officers now to write the dispatch which they would send to the 4th Brigade. It should read thus:

"Heights west of Kingston, 4.30–28–2.

"Reached Etowah without incident—hostile horsemen appear at this moment on the opposite bank. I order the bridge to be occupied."

This closes the ride of instruction. Colonel S. rides with his officers to Kingston, and, after a sufficient rest, trots back to the post over Gillems and Cass Station.

This sketch will be sufficient to indicate how this method of instruction may be conducted and made useful and interesting.

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* These will serve as points for consideration in a lecture on the problem.

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III.

The third problem involves the applied tactics of the three arms combined. The minor tactics of artillery is almost entirely limited to the battle-field; on the march or in camp the main question is one of protection and not of action, still a great many questions relating to the care of the artillery on the march and in camp might be involved in these problems. Its active sphere, however, is the battle-field, and here the main questions are, as to position in the line, as to mode of action, as to the proper time to begin and to stop firing, and as to the successive positions taken up during the different stages of the battle and the objects to be fired at.

The scene of the problem before us is in the vicinity of Richmond, Virginia. The Commanding Officer of a post there delivers one or two lectures on the elementary tactics of the three arms, the duties of advance guards and the occupation of positions for defense, together with a lecture on the military geography of the country about Richmond.

He then takes his officers to the northwest corner of Manchester, on the hill of Redoubt No. 13, and dictates the following problem, which is solved on the same general principle as those already described. The officers should be mounted for the solution of this problem in the field. This problem may also be solved in the lecture-hall by means of the general map of the "Region between Gettysburg and Appomattox Court-House, Va.," and the special map of "Richmond."

Situation.—The army is marching from the south toward Richmond, in order to cross the James River at this point. To-day at 9 A. M. the 1st and 2d Infantry Divisions will cross the river for the purpose of occupying the ground in front of the defile at the Westham Iron-Works, to and including P. Warring's, together with the fronts of support Redoubts Nos. 10, 8, 7, and 6 (which are here supposed to be elevated positions and not fortifications), in order to cover in this position the passage of the army over the stream.

Problem.—The enemy, whose cavalry entered the line of the upper Chickahominy near the Springfield Coal Pits* (see general map) yesterday afternoon, is to be brought to a stand as far as possible from the position selected in order that the necessary measures for defense may be carried out.

The 1st Infantry Division sends for this purpose a detachment under your command, consisting of the 2d and 3d Battalions of the 14th Infantry, half Regiment (4th, 5th and 6th Squadrons) of the 1st Cavalry, and half Battery (3 in. rifles), 1st Artillery, with the following orders:

* About ten miles northwest from Richmond.

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"Move at once over the bridge of the Richmond and Fredericksburg Railroad on the Deep Run turnpike toward the South Anna River as far as Blair's, where a position suitable for a continued resistance will be selected. You will have the cavalry destroy the passages over Brook Run from Pruett's to and including the Richmond and Fredericksburg Railroad. Observe this stretch and establish communication with the detachment of strength equal to your own sent out by the 2d Division from the northeast corner of Manchester over the bridge there, over hill No. 6 to E. Crouch's, and which observes and guards the line of D. Duval's to the railroad.

"The two battalions of infantry, arriving later, will remain in the position at Blair's, and will guard by detachments the road from B. Green's to Green's Mill, and, by assigning cavalry thereto, establish communication with our own troops posted in front of the defile at the Westham Iron-Works.

"Your detachment will remain in this position till 5 P. M., at which hour you will receive further orders.

"All dispatches to the northwest corner of Richmond.

"If met by superior forces the line of retreat of your left wing will be over the road between Hill No. 10 and the Westham Plank Road to Hill No. 11; the line of retreat of the other parts, on the road between Hill No. 9 and Hill No. 10 and on the right of Deep Run turnpike to the northwest corner of Richmond.

"Continue to supply your troops to-day by requisition. Only the light field-train will be taken."

Subject-matter of the Solution.—1. Assumed that your detachment, together with the light field-train, stands at 8.15 A. M. on the northwest corner of Manchester facing southeast.

Wording of the orders issued.

At what hour did the cavalry set out on the march? At what hour the infantry?

Solution.—1. The commandants are assembled, and the orders which have been received are communicated to them.

Order to the commandant of the half regiment of the 1st Cavalry:

"Cross with three squadrons over the James on the R. and F. Railroad bridge and ride on the road toward the South Anna over Blair's to Brook Run, southwest of Mrs. Lounds's.

"In advancing cover the space on the west of the road in the line Hill No. 11, B. Green's (near Browning's) and Pruett's; on the east in the line of the R. and F. Railroad.

"At the fork of the road to Spotts's you will send out one section which

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will ride over Spotts's and Hicks's to B. Green's (near Browning's), and then to Green's Mill, and there establish communication with our troops posted before the defile of the Westham Iron-Works.

"To guard the road, B. Green's (near Browning's) to Green's Mill, a detachment of the 14th Infantry will follow this section.

"To the right, on the R. and F. Railroad, in the direction Deupree's-E. Crouch's, you will establish communication with the cavalry of the 2d Infantry Division.

"The bridges over Brook Run from Pruett's to and including the R. and F. Railroad, will be destroyed by the cavalry Pioneer Section.

"After completing your work you will observe this space. In case you are attacked by superior forces and compelled to retire, you will retreat eastward of the road toward the right wing of my position at Blair's. Order for requisition will follow.

"I will ride with the half regiment to Blair's, whither all reports are to be sent.

"Leave ten cavalry-men for orderly duty.

"Ride alternately at trot and walk."

Order to the ranking commandant of the two battalions of the 14th Infantry:

"I will ride on with the cavalry to Blair's and there reconnoitre the position."

"Assume command of the detachment and march over the R. and F. Railroad bridge through Richmond on the Deep Run turnpike, in secured order of march, to Blair's, where I will personally give the necessary orders for the occupation of the position.

"Four cavalry-men are assigned to you as orderlies."

Cavalry set out on the march at 8.30 A. M.; infantry at 8.40 A. M.

Subject-matter of the Solution, continued.—2. In the position at the northwest corner of Manchester.

You are commandant of the division cavalry. Action of this command in obedience to orders received from you under 1.

Solution, continued.—2. Squadron and section commandants are assembled.

Order to the commandant of the 6th Squadron:

"My orders are known to you.

"The destruction of the bridges of Brook Run, from Pruett's to and including the R. and F. Railroad, you will effect by means of the Pioneer Section, and protect the working party by means of the other three sections, and after destroying the bridges you will observe this section of ground. For this

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purpose you will take up a central position with a half squadron behind the woods at Lipscomb's on the road, and carry on the observation of the section of ground assigned to you by means of small patrols pushed out to Brook Run. The other half squadron (Pioneer Section) you will send to join the main body of the cavalry, which will probably be stationed at Elliott's.

"I will personally assure myself of the destruction of the bridges. Let the advance patrol, one section strong, move off.

"Your line of march will be over the R. and F. Railroad bridge, Richmond, over the Deep Run turnpike. On reaching the northwest corner of Richmond you will send a patrol to clear up the ground on the flank over Hill No. 11, Spotts's–Hicks's to B. Green's (near Browning's), from which point it will attempt to establish communication again with its squadron at Pruett's.

"A second patrol will advance along the east of the road, between the road and the line Greenwall's–J. Sinton's–Winston's; and a third along the R. and F. Railroad.

The last-mentioned will seek to establish communication with the cavalry of the 2d Infantry Division in the direction Deupree's–E. Crouch's.

"While you are in this position for observation at Brook Run you will preserve this communication.

"With the main body of the cavalry I will follow you as far as Elliott's, where I will select for you a final position.

"Move alternately at trot and walk."

After the 6th Squadron has gained the distance of 800 paces I command:

"Fours left—trot—march (4th Squadron at the head). A patrol of the 5th Squadron as rear-guard."

During the march through Richmond and past Hill No. 10, I give the commandant of the 1st Section of the 4th Squadron the following order:

"You will turn off with your section at the cross-roads near the old line of fortifications toward Montague's, and ride thence over Spotts's and B. Green's to Green's Mill. There you will establish communication with our troops posted before the defile near the Westham Iron-Works.

"A detachment of the 14th Infantry will follow you.

"The object of this movement is not only to establish communication as stated, but also to guard the road B. Green's–Green's Mill and the Westham Plank Road.

"You will therefore send a small patrol every hour over Ginnett's, Cater's, B. Green's (near Browning's); and another patrol in the opposite direction over the same route.

"Reports you will send to headquarters at Blair's."

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With the main body of the cavalry I will go ahead on the road. Terminus of march : Elliott's.

Subject-matter of the Solution, continued.—3. Arrival at Blair's.

(*a*). When did the main body of the cavalry arrive at Blair's ? To what point is the advance conducted and what further orders are given ?

(*b*). Assuming that the commandant of the entire detachment arrived with the cavalry at Blair's, will he find it necessary to issue any orders there, and if so, what orders ?

Solution continued.—3 (*a*). The main body of the cavalry arrived at Blair's at 9.35 A. M.

The march of the main body of cavalry is continued to Elliott's as decided under 2.

(*b*) Here the commandant of the detachment gives the following orders to the commandant of the cavalry :

" The three sections of the 4th Squadron will remain in rear of Blair's, and will deploy in line of skirmishers on the line of the old fortifications, until the arrival of the main body of the detachment, so that, in case you come in contact with superior forces in your advance and are forced to retire, you will find a secured position ready for you which will be held till the arrival of the battalions of the 14th Infantry. Your retreat will, in this case, take place toward the right wing of the position between earthwork No. 1 and the railroad.

" If it becomes necessary for the 4th Squadron to open fire, all three sections will be placed on the line, and it will be your duty to protect them.

" Ride on with the 5th Squadron and carry out your orders.

" I will remain here."

To the commandant of the 4th Squadron :

" In anticipation of a possible retreat of the cavalry which has been sent forward, and of an attack by the enemy on the position, you will occupy the old line of earthworks with your three troops and hold yourself in readiness to open fire.

" Earthwork No. 1 on the right wing you will occupy with one section, No. 2 with one section, the point of crossing with the road with one patrol (about 10 men) and earthwork No. 3, west of the road, with two patrols.

" The protection of the cavalry in the skirmish-line will be undertaken by the cavalry subdivisions which have retired.

" For the purpose of establishing communication with the cavalry section detached to guard the road B. Green's-Green's Mill, you will send a small patrol every half-hour on the road from Blair's over Spotts's to B. Green's.

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Subject-matter of the Solution, continued.—4. After your return to Blair's from Elliott's.

When will the two battalions of the 14th Infantry arrive at this place?

You are commandant of the entire detachment—what orders will you give to the battalions?

Solution continued.—4. The two battalions of the 14th Infantry, with the half Battery and the light field-train, arrived at Blair's at 10.50 A. M.

After assembling the commandants of battalions and the artillery, I give the following orders:

To the commandant of the 2d Battalion:

"Send at once half company, under the command of the company commander, to B. Green's. The object of this movement is to secure the road B. Green's-Green's Mill, and to preserve the communication with our troops posted before the defile near the Westham Iron-Works.

"The 1st section of the 4th Squadron, previously sent there, will be under command of this captain.

"In the event of a general attack and a consequent retreat, the line skirting the woods from B. Green's (near Browning's) to Spotts's, is designated for this detachment, then between Hill No. 10 and the Western Plank Road to Hill No. 11.

"Requisitions for food and forage will be made by this detachment in the sections around B. Green's.

"Reports will be sent here.

"You will occupy for the present the earthwork No. 1, the point of crossing with the road and earthwork No. 3 with half company, earthwork No. 4, and the one projecting to the northwest (I point out these objects) with one section. The wings of the position must be secured by sending out patrols.

"You will personally direct the occupation of this line, and by means of the pioneers of both battalions of infantry you will have the old earthworks, especially the point of crossing with the road, put in condition for a stubborn defense.

"Distances are to estimated.

"The rest of the battalion will take up a position with the 3d Battalion in rear of the line, and will be employed in making requisitions for food for the men and forage for the horses of the battalion.

"Place for requisitions for your battalion: the suburbs of Richmond, west of the Deep Run turnpike.

"I will remain at the center of the line."

To the commandant of the 3d Battalion:

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"Take up a concentrated position with your battalion, the one and a half companies of the 2d Battalion and the light field-train in the woods in rear of the line of earthworks.

"You will make your requisitions for food and forage for your battalion in the suburbs of Richmond, to the east of the Deep Run turnpike. The subsistence necessary for the one half Battery will also be obtained there.

"Thereupon rations will be prepared.

"Place of alarm; in your position.

"I will remain at the center of the line."

To the commandant of the two sections of Artillery:

"Take up a position with the half Battery in earthwork No. 2. Projectiles behind the earthwork. Ammunition-wagons in the woods alongside of the road, and about 200 yards in rear of the line.

"The 3d Battalion will provide the necessary food and forage for the half Battery. Send on a non-commissioned officer with information as to what is required.

"Thereupon rations will be prepared and the horses fed."

To all the commandants:

"In the event of retreat, the left wing will retire along the left of the road, between Hill No. 10 and the Westham Plank Road to Hill No. 11; the center on the road, and the right wing on the right of the road to the northwest corner of Richmond."

To the commandant of the 4th Squadron:

"Assemble your three sections and join the main body standing at Elliott's.

"You will take with you the order to the commander of the half regiment."

The latter is worded:

"*Sent by:* The commandant of the detachment near Blair's.

"*To:* The commander of the half regiment at Elliott's.

"*Dated:* Earthworks, near Blair's, February 21st, 11 A. M.

"Subsistence for men and horses is to be obtained by requisition in the section about Bethlehem Church, then rations prepared and horses fed.

"The communication toward Pruett's is to be observed.

"*Sent at:* 11.50 A. M. *By:* Private N.

"*Gait:* Trot and walk."

Then I send the following report to the commander of the Infantry Division:

"*Sent by:* Detached commander at Blair's.

"*Dated:* Blair's, February 21st, 11 A. M.

"Position in the line of the old earthwork at Blair's occupied.

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"For the security of the road B. Green's—Green's Mill, half company of Infantry and 1 section Cavalry detached.

"Communication with Westham Iron-Works established there.

"Main body of Cavalry, two and a quarter squadrons, at Elliott's.

"Bridges over Brook Run destroyed.

"For the observation of the ground a half squadron is pushed out.

"Communication to the right, with Cavalry established there.

"*Sent at:* 11.15 A. M. *By:* Corporal M.

"*Gait:* Trot and walk."

These examples will be sufficient to illustrate the proper method of instruction in Minor Tactics. This is a great age of progress, and the military profession can no more afford to stand still than any other scientific profession. There *is* no standing still; the moment you cease to work in these days you fall behind, and no one hesitates to go above you. The modern battle is not a matter of drill and target practice. If you fail to bring your men within good rifle range, of what use are your sharp-shooters? If you do not know how to manœuvre and subdivide your battalion so as to have the least number killed before the assault, of what use are your well-drilled companies?

The fire of a line of battle is utterly regardless of the quality of the material it is mowing down.

Drill and target practice are both excellent means of preparing troops for war, but they only furnish good material. The proper use of this material to the best advantage must be learned from the principles of Minor Tactics.

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PROBLEMS.

THE problems here given illustrate most of the practical duties of troops, and indicate the mode of procedure in applying the system of instruction. Similar problems may be applied to any particular topography, the solution varying, of course, with the situation. The solutions given will be sufficient to illustrate the general character of the work required. For convenience the problems are arranged progressively.

The problems in strategy are designed to assist those who desire to prepare large problems, involving all the troops of a Department, of which the minor problems may then constitute separate parts for particular subdivisions.

No.	SUBJECT-MATTER.	Troops.	Map.
I.	Attack in limited zone	1 Battalion.	I.
II.	Armed reconnaissance	2 Squadrons.	II.
III.	Holding enemy in check	2 Battalions. 3 Squadrons. ½ Battery.	III.
1	Reconnaissance patrol	1 Patrol.	II.
2	Reconnaissance	1 Company.	II.
3	Armed reconnaissance	½ Squadron.	II and IV.
4	Armed reconnaissance	½ Squadron.	II and IV.
5	Establishing outposts	1 Company.	II.
6	Occupation of bridges and village	1 Squadron.	II.
7	Reconnaissance and secured halt	1 Squadron.	V.
8	Establishing communication	1 Company.	VI and VII.
9	Establishing communication	2 Companies. 1 Squadron.	VI and VII.
10	Rear-guard	1 Squadron.	V.
11	Defense of village		II.
12	Reconnaissance	1 Squadron.	V.
13	Reconnaissance of observation	1 Squadron.	V.
14	Reconnaissance	1 Squadron.	VI and VII.
15	Rear-guard, defense of bridges	2 Companies.	II.
16	Attack of a train	2 Squadrons.	VIII.
17	Reconnaissance	1 Squadron. 1 Company.	II.
18	Outpost duty and reconnaissance on flank of line of battle	2 Squadrons.	IX.
19	Picket attacked in superior force	3 Squadrons. 2 H. A. Guns.	II.
20	Flanking column	1 Battalion.	II.

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No.	SUBJECT-MATTER.	Troops.	Map.
21	Establishment of Grand Guard No. 1	2 Companies. 1 Section Cavalry.	X.
22	Occupation and reconnaissance	3 Squadrons.	VIII and XI.
23	Passage of defile and deployment for battle	1 Battalion. 2 Companies. 1 Platoon Cavalry. 2 Guns.	XII.
24	Repair of railroad, and its prevention	2 Squadrons.	VI, IX, XIII.
25	Escort of a train	1 Battalion. 2 Squadrons. 2 Guns.	II.
26	Defense of bridge	1 Battalion. 2 Sections Cavalry.	II and VIII.
27	Destruction of bridge	3 Squadrons.	VI and XIV.
28	Destruction of railroad, and its prevention	2 Battalions. 2 Squadrons. 4 Guns. and 3 Battalions. 1 Squadron. 4 Guns.	VI and XV.
29	Battle for a defile	3 Squadrons. 1 Company. 2 Guns.	II.
30	Passage from masses to order of march and order of battle	1 Battalion.	II.
31	Reconnaissance and defense of bridges	Half-regiment of cavalry.	XII.
32	Passage from column of march to order of battle.	1 Battalion.	II.
33	March of flanking column and battle	3 Squadrons. 1 Company. 2 Guns.	II.
34	Advance of a battalion on a line of battle	1 Battalion.	XIV.
35	Occupation and reconnaissance	2 Battalions.	X.
36	Defense of a village		VI and XIV.
37	Attack of woods	2 Battalions. ½ Battery. 1 Section Cavalry.	XVI.
38	Rear-guard battle for a height	2 Battalions. ½ Squadron. 2 Guns.	VIII.
39	Defense of defile	2 Battalions. 2 Guns. 1 Squadron.	XVII.
40	Outposts	2 Battalions. 1 Squadron.	XVIII.
41	Advance-guard attack	2 Battalions. 2 Guns. ½ Squadron.	II.
42	March of flanking column	3 Battalions. 3 Squadrons. 4 Guns.	II.
43	Camping and outpost duty during the night	3 Squadrons. 2 Battalions. 2 H. A. guns.	II and VIII.

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No.	SUBJECT-MATTER.	Troops.	Map.
44	Detachment in the vicinity of the enemy	4 Battalions. ½ Engineer Company. 2 Squadrons. ½ Battery.	II and IV.
45	Exercise in verbal orders. Occupation of bridge	3 Battalions. 1 Squadron. ½ Battery.	III.
46	Exercise in verbal orders. Advance-guard	3 Battalions. 1 Squadron. 1 Battery.	XIX.
47	Establishment of outposts	3 Battalions. 2 Squadrons. 1 Battery.	III.
48	Establishment of outposts	1 Regiment. 1 Squadron. ½ Battery.	III.
49	Position before a defile	1 Regiment.	XII.
50	Crossing difficult ground	1 Regiment.	XII.
51	Occupation of bridge for defense	1 Regiment. 2 Squadrons. 1 Battery.	VI and VII.
52	Occupation of a line	1 Regiment. 2 Battalions. 3 Squadrons. 1 Battery.	VIII.
53	Battle for heights	1 Regiment. 1 Squadron. ½ Battery.	XII.
54	Battle for heights	1 Regiment. 2 Squadrons. 1 Battery.	II.
55	Position for covering an army	1 Regiment. 1 Squadron. 1 Battery.	XX.
56	Defense of railroad-station	1 Regiment. 1 Squadron. 1 Battery.	XIX.
57	Outpost duty during the night	1 Brigade.	X.
58	Advance-guard. (Problem continued.)	6 Battalions. 1 Company Engineers 4 Squadrons. 1 Battery.	VIII.
59	Night-march	1 Brigade.	II.
60	Occupation of woods	7 Battalions.	VIII.
61	Covering bridge: march to attack	1 Brigade. 3 Squadrons. 1 Battery.	II.
62	Pursuit and separation of enemy's troops	1 Brigade.	VIII.
63	Fortification and occupation of bridge-head	1 Corps.	VIII and XI.
64	Reconnaissance and pursuit	1 Corps.	XXI.

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MAPS.

I.—Franklin, Tenn.
II.—Atlanta Campaign II.
III.—Richmond.
IV.—Atlanta Campaign I.
V.—Fort Union, N. M.
VI.—Region between Gettysburg and Appomattox C. H.
VII.—Wilderness.
VIII.—Atlanta Campaign III.
IX.—Petersburg and Five Forks.
X.—Atlanta, Ga.
XI.—Atlanta Campaign, V.
XII.—Vienna.
XIII.—Bermuda Hundred.
XIV.—Antietam.
XV.—High Bridge and Farmville.
XVI.—Gettysburg.
XVII.—Harper's Ferry.
XVIII.—Blankensee.
XIX.—North Anna.
XX.—Libochowitz.
XXI.—Tarnopol.

Maps I, II, III, V, XII, XVIII, XX, and XXI are in the book. The other maps may be obtained at posts by application to the War Department.

1. For Subalterns of Cavalry.

Map II. Atlanta Campaign II.

Situation.—An army is moving down the valley of the Oostenaula over Calhoun, Adairsville toward Kingston.

A patrol, which had been sent over Nannie P. O., Friendship Church to Collison's to observe the defile Buckett's Mill, is advancing from Nannie P. Office.

Problem.—You are commandant of this patrol, and are required to make a reconnaissance for information.

Subject-matter of the Solution.—1. Detailed outline of the route selected, —conduct on approaching village, heights, woods—passage of roads—detachments of single horsemen where sent and for what purpose—conduct of single horsemen until they rejoin the patrol—precautions during halt.

2. Questions asked of the inhabitants at Friendship Church—measures taken at Friendship Church.

3. Measures taken on reaching destination—observation of a hostile squadron at Rome—dispatch sent back—instruction given to orderly carrying the dispatch.

2. For Subalterns of Infantry.

Map II. Atlanta Campaign II.

Situation.—The main body of our troops is at Calhoun. You are with the advance-guard at King's Mill, and at 6 A. M. receive the following order:

Problem.—You will reconnoitre the country along the main road, as far as the village of Adairsville, with one company of infantry.

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Obtain all the information you can about the enemy's movements and force, and note carefully the general features of the country you move through. Avoid engagements with enemy's infantry, but push back any small parties of his cavalry you may meet with.

None of the enemy's parties had visited the village of Adairsville up to yesterday.

Subject-matter of Solution.—1. Military estimation of ground.

2. Statement of leading thought in the execution.
3. Orders given and dispositions made.
4. Tracing of the position of the company at 7 A. M.

3. For Subalterns of Cavalry.

Maps II. and IV. Atlanta Campaign I and II.

Situation.—A brigade, a battery, and three squadrons have been sent from Cartersville to Rome, to occupy the bridge and observe the right flank of the enemy.

Two battalions and one squadron are said to have occupied Dalton.

The improbable news has been received that a strong column of the enemy marched from Subligna to Pocket or John's Creek Mills, evidently intending to move over Calhoun-Resaca or Floyd Springs-Rome.

Two squadrons, A and B, were ordered by Major R. to Calhoun to reconnoitre toward Pocket or John's Creek Mills, at the same time observing Dalton. The first section of Squadron C was sent to Adairsville, sending a patrol to Salacoa, and another over Bowden's Church to establish communication with the two squadrons of cavalry. The second section of Squadron C was ordered to Floyd Springs, sending patrols to Marshall's and Andrew's, and receiving directions to communicate with the two squadrons of cavalry by messengers only.

A company of the 12th Regiment of Infantry, under Captain N., occupies Hermitage as a support for the cavalry.

No enemy in view. The two squadrons entered Calhoun at 10.30 A. M. Patrols of Squadron A have been sent in all directions; they also did the outpost duty on the march; the rest of the troop is ready to mount at any moment. Squadron B is feeding its horses.

Problem.—You are commandant Squadron B, and at 10.45 A. M. receive the following verbal order from Major R.:

"At 11.30 A. M. Squadron B will ride off:

"One section to Newtown, to observe the roads to Resaca.

"One section to Lay's, to reconnoitre to Sugar Valley P. O. A patrol of the section back to Daniels's Mill.

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"These detachments will remain in direct communication with me.

"A half squadron of your command to Bow's to reconnoitre the road to Pocket or John's Creek Mills.

"You know our orders, and that therefore the most energetic action for the safety of the troops is required.

"Dispatches you will send to the Post-Office of Calhoun. Toward evening you will receive further orders, depending on the character of the information obtained in the mean time.

"As soon as you arrive at Bow's send the section of Squadron A, which had been pushed forward to that place, back to Calhoun."

Subject-matter of the Solution.—Reconnaissance with a half squadron toward Pocket or John's Creek Mills.

1. Estimation of the relations of the ground.
2. What orders will you give on arriving at Bow's?
3. What special precaution will you take?
4. Tracing of the positions of the fractions of the half squadron at 3 P. M.

Note.—By that time no news of the enemy had been obtained.

4. For Captains of Cavalry.

Maps II and IV. Atlanta Campaigns I and III.

Situation.—That resulting from Problem 3.

Problem.—Major R. received the following order from Rome at 6 P. M.:

"Remain overnight and continue your observations to-morrow. The first section of Squadron C will remain in Adairsville; the second section will be brought back to Armuchee P. O."

Subject-matter of the Solution.—The arrangements for the night:

1. Estimation of the relations of the ground.
2. How will Major R. pass the night with his detachment?
3. What orders does he give?
4. Tracing of the position of the detachment during the night.

Solution.—1. Calhoun is surrounded by heights. The Oostenaula flows by on the west, and the country to the north is shut in by a small creek, and that to the southwest by the Oothcaloga Creek; to the north and west there are few roads, but quite a network to the south and east; to the south the valley is closed by the hills north of Adairsville.

2. It is not advisable, therefore, to remain in the village overnight; I must withdraw, and, with a view to the preservation of communication with Rome, to the southeast, where the roads are more numerous.

I will select a position for the night in rear of the cross-roads at Ooth-

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caloga Mill, where there are more roads, and where I can readily move to Springtown P. O., Daniels's Mill, and other points of importance, by the roads, or even across country. Advanced posts must protect me against surprise. Shortly before sunset I will take Squadron A to the new camp, and establish the night-guards. At nightfall Squadron B will assemble at the new camp.

3. To the subdivision of Squadron B I send the following order:

"Squadrons A and B will camp for the night at the cross-roads near Oothcaloga Mill. After sunset the subdivisions of Squadron B will proceed thither. This order will be sent direct to Bow's and Johnson's."

I will ride to the new camp with Squadron A, and order as follows:

"Post No. 1.—Two patrols* under the command of an officer at Calhoun Ferry. Sends two men from time to time toward Lay's and Johnson's.

"Post No. 2.—One patrol at Dobbin's Ferry. Sends two men to Bow's and Tanner's from time to time. Three men posted at Printup's Ferry.

"Post No. 3.—One patrol at Niel's. Observes Miller's Ferry, and sends a small patrol to Mills occasionally.

"Post No. 4.—One patrol at Allison's, sending small patrols in the direction of Daniels's Mill.

"Post No. 5.—One patrol at the cross-roads at Curtis's. Sends two men toward Red Bud."

A seventh patrol of Squadron A is held in readiness, the horses saddled and bridled, the men ready to mount; a section is saddled, ready to be bridled, the men ready to mount; another section is watered and fed, and held ready to be saddled and bridled.

5. For Subalterns of Infantry.

Map II. Atlanta Campaign II.

Situation.—The I Division, advancing from Cartersville toward Calhoun, encamps after its first march between Cassville and Cass Station on both sides of the main road.

The Division secures itself against surprise by means of outposts.

For the space east of the road, toward Boswell's, the 3d battalion is designated; for that west of the road, toward the Etowah, the 1st and 2d battalions, one squadron of cavalry, and a half battery, are designated.

This subdivision marches through Cassville on the road to Calhoun as far as Burnley's, where it takes position as outpost reserve.

The regimental commander assembles the battalion, company, squadron, and half-battery commanders, and says:

* A patrol consists of about ten men.

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"The Division camping to the east of Cassville secures itself by outposts, the line extending from Boswell's westward toward Underwood's, over the Lime-Kilns to Crawford's Station. The space in front of us, as far as Summer's, Speed's, Wright's, Kingston, is reconnoitred by the Division cavalry.

"It is known that in Adairsville there is a large force of the enemy, composed of all arms, the cavalry patrols of which have been observed near New Hope Church.

"The 1st, 2d, and 3d companies of the 1st battalion will constitute the outposts.

"The outpost reserve remains here."

Problem.—You are in command of the 2d company, which will establish Grand Guard No. 4 east of the road on the hill at Hooper's.

You will remain in communication with:

Grand Guard No. 3 (half of the 1st company), on the right, which is posted on a line with you on the road to Branson's Mill.

Grand Guard No. 5 (half of the 1st company), which is posted at Underwood's.

Your patrols you will send to Wright's; in case the enemy attacks, you will defend your position to the utmost.

I will remain here with the outpost reserve.

Ordinary reports you will send every two hours. For carrying dispatches I detail to you four dragoons. After taking up your position you may cook rations.

Countersign: Atlanta. Parole: Sherman.

Subject-matter of Solution.—1. What measures will you take for your march to your position? Orders verbally given. (Ten minutes allowed.)

2. After reaching your position, discuss the ground in relation to your problem. (Thirty minutes.)

3. What do you order immediately on your arrival? (Thirty minutes.)

4. Compose the report of occupation, giving in detail the positions of the sentries, etc., and illustrate with a rapid sketch. (One hour and a quarter.)

6. For Subalterns of Cavalry.

Map II. Atlanta Campaign II.

Situation.—A body of troops from the north has arrived in Calhoun, and is to advance toward the south on the right bank of the Oostanaula.

It is necessary to know whether Rome is occupied by the enemy, whether bridges over the Oostanaula and Etowah are in good condition, and whether the road has been destroyed.

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Problem.—You are sent with your squadron at 1 P. M. from Armuchee P. O. to solve this problem and find Rome not occupied by the enemy, and the bridges and road in good condition, and are required to render the bridges and village safe against a sally, and to hold them until the following morning.

Subject-matter of the Solution.—1. Statement of plan of action.

2. Method of advance, and reconnaissance of Rome.

3. Measures for the defense of bridges and village, and precautions taken during the day and during the night.

4. Wording of the necessary orders and of the information sent back to the main body, including addresses.

5. Tracings of the arrangements for the defense of the bridges and the village, including the positions of all detachments.

7. For Subalterns of Cavalry.

Map V. Fort Union, N. M.

Situation.—A cavalry brigade encamped at Fort Union is ordered to advance on the road Fort Union-Puerto del Cañon, toward the Cañon of the Mora River, and sends a squadron ahead with the following order:

Problem.—You will advance with your squadron at 6 A. M. on the road Fort Union-Puerto del Cañon, clearing up the ground between the road Fort Union-Loma Parda on one side and the road Fort Union-Johnson's on the other, and halt in a secured position on the line Loma Parda-Tiptonville, and await further orders to advance.

Hostile cavalry was seen yesterday beyond the Cañon of the Mora, near Los Alamos.

Subject-matter of the Solution.—1. Military estimation of the terrain with reference to the problem.

2. Leading thought in the execution.

3. Orders issued.

4. Tracing of the position of the squadron, with all its detachments, during the secured halt.

8. For Subalterns of Infantry.

Maps VI and VII.

Region between Gettysburg and Appomattox C. H., and the Wilderness.

Situation.—The corps constituting the right wing of an army moving from the north on Richmond has its First Division at Foster's and United

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States Fords, its Second Division at Berea Church, and its Third Division at Hartford on the 1st of June.

On the 2d the Corps is to occupy the line:

Salem Church-Fredericksburg.

On the 3d the line:

Jarrold's Mill-Downen's Bridge.

The roads available are:

Foster's Ford—Chancellorsville—Salem Church—Stannard's Mill; and Berea Church—Falmouth—Fredericksburg—Baptist Church—Villeboro.

The column of Colonel A is on the march from Ely's Ford to Spottsylvania C. H. Squadron B, attached to his command, had been ordered from Ely's Ford to Wilderness Tavern at 4.30 A. M.

Problem.—At Wilderness C. H. Colonel A orders:

"The commandant of the 1st Battalion will march westward with two companies to Wilderness Tavern and remain there overnight with Squadron B.

The other two companies will march over Hickman's to Parker's store, one company remaining at the latter place, the other at Miss Billion's.

The entire train of the battalion will remain under the care of the 3d Battalion of the 12th Regiment.

A company of the 2d Battalion will remain overnight at Stephen's, on the left of the 1st Battalion.

All the detachments will remain in communication with one another.

The 1st Battalion is to be concentrated at Todd's Tavern at 9 A. M., and await orders.

You are commandant of the 10th isolated company (K) at Parker's store.

Subject-matter of the Solution.—1. Estimation of the relations of the ground at Parker's store.

2. Establishment of communication with the other companies, and of outposts during the night.

3. Disposition of the troops.

9. For Subaltern Infantry Officers.

Maps VI and VII.

Situation.—As in Problem 8.

Problem.—You are commandant of the half-battalion. The junction with Squadron B at Wilderness Tavern takes place at 3 P. M.; the commandant of the Squadron reports to you, and you are required to give him the necessary directions.

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Subject-matter of the Solution.—1. Estimation of the relations of the ground with reference to your march and sojourn at Wilderness Tavern.

2. Method of conducting the march. Dispositions before dark. Dispositions after dark.

3. Orders issued on arrival. Orders issued for the night.

4. Tracing the situation of the squadron and companies at midnight.

Note.—Up to midnight no further information regarding the enemy has been received.

10. For Subalterns of Cavalry.

Map V. Fort Union, N. M.

Situation.—A cavalry regiment is retreating from Fort Union to Los Alamos, and you with your squadron have been detached as rear-guard.

Problem.—This rear-guard is on the plateau of Loma Parda at the cross-roads, when it receives the information that about one and a half squadron of the enemy are moving against the height at Loma Parda from La Junta.

Subject-matter of the Solution.—1. Military estimation of the ground with reference to the problem.

2. What is the probable object of the one and a half squadron? Where are you when you receive this report? How is your force organized and posted?

3. Where is the regiment when you reach the cross-roads?

Orders issued.

4. How will you prevent your opponent from crossing Sapello Creek at Los Alamos?

Tracing of your position and the enemy's at this point.

11. For Subalterns of Infantry, Cavalry, and Artillery.

Map II. Atlanta Campaign II.

Situation.—In the position Kingston—Best's Mill—Cassville—Bishop's Mill the passage of the army from the left to the right bank of the Etowah is to be covered, and after its debouch the offensive is to be taken along the road to the north.

Problem.—Cassville is to be a defensive object, on the line of defense above mentioned, against a direct attack from Little Prairie.

The defensive front of the section of which Cassville forms the main point is limited on the west by the Female College, on the east by the Cemetery. The foreground to be considered extends from Branson's Mill to the road from Little Prairie to Gilreath's northeast of Cassville.

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Subject-matter of the Solution.—1. Military estimation of Cassville as a defensive object, based on the conditions required to be fulfilled in theory, and the advantages and disadvantages for defense.

2. What troops are necessary as a garrison for its energetic defense?

3. Where and how will these troops be posted and grouped?

4. What artificial measures of improving its defensive strength can be undertaken between 8 A. M. and 2 P. M., by to-day's weather, and with the means on hand? Orders issued to carry out the work.

5. What position is selected for the artillery?

6. Where would an exterior reserve be posted, were any available?

12. For Subalterns of Cavalry.

Map V. Fort Union, N. M.

Situation.—A reconnaissance party coming from Tecolotenos over Sapello intends to rest at Loma Parda and cook rations. You are sent ahead with your squadron from Sapello Creek, with the following order:

Problem.—You will clear up the ground on the left bank of Sapello Creek to its junction with the Mora near La Junta, observe the crossings of the stream and hold any hostile detachments, that may attempt to cross, in check. Your line of retreat, in case you are beaten back, will be over the mesa to Loma Parda Mountains.

Subject-matter of the Solution.—1. Military estimation of the ground with reference to the problem.

2. Leading thought in the execution.

3. Orders issued.

4. Tracing of the position of the reconnaissance party and your squadron, including all its detachments, during the rest.

13. For Subalterns of Cavalry.

Map V. Fort Union, N. M.

Situation.—A reconnaissance party, before retiring over the Mora at La Junta, learns that hostile troops are advancing over Coyote on Fort Union, and leaves a squadron behind in the vicinity of Alkali, in a position secured against surprise, with the following order:

Problem.—You will break camp with your squadron at 8 A. M., and hunt up the enemy, obtaining information as to his strength and the character of his troops. Retreat on Tiptonville.

Subject-matter of the Solution.—1. Description of the position secured against surprise.

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2. Leading thought in the solution of the problem.

3. Orders issued in case the advancing hostile body is composed of two battalions of infantry, two squadrons, and two field-pieces.

4. Tracing of the position of observation.

14. For Subalterns of Cavalry.

Maps VI and VII. Region between Gettysburg and Appomattox C. H., Wilderness, Chancellorsville, Fredericksburg, and Spottsylvania C. H.

Situation.—The enemy is moving from Richmond against Washington. The enemy's cavalry was seen yesterday at Stannard's Mill.

The line Alexandria—Manassas Junction—Thoroughfare Gap is occupied by our troops, and the 5th Brigade of Cavalry, with one horse-battery, is sent over Culpeper C. H. to Ely's Ford on the Rapidan, to observe and retard the enemy's march.

Problem.—During the halt at Culpeper C. H. the General commanding the Brigade sends you and your squadron forward with the following orders:

The Brigade will continue its march at 9.30 A. M., and go into camp near Ely's Ford. To carry out the reconnaissance, a half-squadron will march along the left bank of the Rapidan to Berea Church; a squadron over Ely's Ford to Chancellorsville; and you will proceed with your squadron, for the same purpose, from this place over Germania Ford to Parker's Store, and cover in your march the right flank of the Brigade.

From Parker's Store you will reconnoitre the sector between the Catharpin Road and the Rappahannock, up to the line: Shady-Grove Church—Spottsylvania C. H.—Fredericksburg, and establish communication with the squadron in Chancellorsville.

As soon as you have taken up your position at Parker's Store report the fact to the Headquarters of the Brigade at Ely's Ford, whither you will also send regular daily reports at 7 P. M., 8 A. M., and 2 P. M. Events of special importance will be reported at once.

Subject-matter of the Solution.—A squadron on reconnaissance.

1. Explain and discuss your plan of operation, what problem arises in your advance, statement and execution of the solution, what detachments are sent out and for what purpose, and what instructions do they receive.

2. Explain and discuss the problem that arises on your arrival at Parker's Store, your plan of operation, and measures for security. Occupation of the position, conduct of the patrols, instruction of patrols, dispatches.

3. Tracing of the position of the Brigade, including all detachments, at 1 P. M.

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15. For Captains and Subalterns of Infantry.

Map II. Atlanta Campaign II.

Situation.—Our own army—defeated at Marietta—is withdrawing toward Calhoun. The I Division is the rear-guard of this army. After continuous fighting a new position was finally taken at Ackworth. On account of the attack of some of the enemy's forces coming from the east, the division here meets with defeat and retires in great disorder to the north.

Only the 2d Regiment (6th, 7th, and 8th Battalions) has preserved its order and endeavors, in conjunction with a squadron of cavalry, to cover the retreat. The enemy is pushing closely after.

The division commander intends to assemble his troops at Cass Station. He directs the commandant of the 2d Regiment to take up a position as rear-guard with his regiment on the creek emptying into the Etowah above Rowland's Bend, in order to gain the time necessary to reorganize the division. He will re-enforce him there by whatever troops he can gather, and also by artillery. In order that this may be possible, however, the crossing of the Etowah, now swollen by the rains, is to be defended to the utmost by a small subdivision from his regiment.

You are commandant of the 1st Company of the 6th Battalion, and receive at noon to-day, on the road Ackworth-Cartersville, near Allatoona, from the regimental commander, the following order:

Problem.—The enemy *must* be delayed. The regiment will, with several other subdivisions, occupy and defend the heights west of the creek emptying into the Etowah at Rowland's Bend. In order to enable me to carry out the necessary measures for strengthening this position, the passage over the Etowah must be held. Occupy with the 1st and 2d Company of your battalion Etowah Bridge and the railroad-bridge near it and defend them to the utmost. Endeavor to destroy the wooden road bridge. The regiment will cross on the railroad-bridge. The Etowah is much swollen. The crossings of the river between Quentin's Ferry and Etowah I will have destroyed by the cavalry. A cavalry patrol will be detailed under your orders. Four ammunition-wagons will be left for you at the road-bridge.

Your retreat will be over Cartersville and Milam's Bridge. Reports will be sent to the hill at Benham's, northwest of the creek.

Subject-matter of the Solution.—1. What will you do on receiving this order (ten minutes allowed)?

2. After arriving on the right bank of the Etowah near the railroad-bridge, discuss the relations of the ground with reference to your problem. What orders are issued (one hour and a quarter)?

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3. You succeeded in breaking down the supports of the wooden road-bridge; the regiment has nearly crossed the railroad-bridge, but two companies remaining on the left bank 300 paces from the bridge. Hostile skirmishers are pushing in dense lines from Ballard's and the hill to the west, endeavoring to gain the bridge at the same time. By what measures will you attempt to prevent the simultaneous passage of the enemy? What orders are issued for this purpose? Make a tracing of the situation (three quarters of an hour).

16. For Captains and Subalterns of Cavalry.

Map III. Atlanta Campaign VIII.

Situation.—A reconnaissance party arriving near Cross-Roads Church, 8 miles northeast of Dallas, from the south, learns that a force of the enemy, consisting of two squadrons, has made a requisition at Marietta and is on its way back to Cassville, between Big Shanty and Ackworth.

Problem.—The commandant sends you with two squadrons, with orders to attack the train and delay its retreat.

Subject-matter of the Solution.—Attack of a train.

1. General plan of action. Selection of point of attack. Probable time of arrival of train at this point. How will the enemy be formed? Selection of line of march. Disposition on the march.

2. Situation of train and escort at moment of attack. Time. Resting-places of escort and of attacking force.

3. Dispositions for and execution of the attack.

17. For Captains and Subalterns of Cavalry and Infantry.

Map II. Atlanta Campaign II.

Situation.—The commander of a small force of all arms, on reaching Hain's Mill, about two miles southwest of Cassville, hears that some of the enemy's scouts have appeared near Stilesboro, a village about eight miles distant. He accordingly determines to send a reconnoitring party in that direction at daybreak the following morning.

The country south of the Etowah is known to be open, and, as the force is short of cavalry, he decides to send a mixed party of cavalry and infantry. The main use of the infantry will be to hold the bridge over the Etowah at Gillem's, and thus, by rendering the retreat of the cavalry secure, enable them to act with greater freedom beyond the river.

The reconnoitring party is composed of one squadron of cavalry and one company of infantry.

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The whole is placed under your command.

The party is ordered to breakfast at 4.30 A. M. and parade at 5 A. M.

The following orders are given you overnight:

Problem.—Reports have been received that the enemy's scouts visited Stilesboro to-day. You will reconnoitre beyond the Etowah in the direction of Stilesboro and Jackson's, to ascertain if these reports are correct, and obtain what information you can about the enemy.

A company of infantry is added to your party, with a view more especially to securing your retreat over the Etowah, should you be pressed by the enemy.

A small cavalry patrol will move to Island Ford at the same time as your party sets out from camp to watch the passage over the Etowah at that point, and to communicate, if necessary, with you at Saltpeter Cave.

Subject-matter of the Solution.—1. Military estimation of the ground with reference to the problem.

2. Leading thought in the execution.

3. What orders are issued on starting out? What orders are given at the bridge?

4. Tracing of the situation at 7.30 A. M.

18. For Captains and Subalterns of Cavalry.

Map IX. Petersburg and Five Forks.

Situation.—A division bivouacs on the right bank of the Appomattox, covering the Ettricks bridges, and has pushed forward a subdivision to a point between Cox Road and the cross-road from Boydton Plank Road, just north of the Workhouse.

According to reports received, the extreme outposts of the enemy, who is stationed at Weldon on the Roanoake, have been pushed out as far as the cross-roads near P. McKenzie's.

In consequence of this, the division receives orders to advance to-morrow on Cox Road, and secure the defile at S. S. Nottingham's, between that point and the Appomattox, for which purpose line of battle will be formed near Turnbull's.

Problem.—The following are the orders for to-morrow:

"The advance-guard, consisting of two battalions infantry, one battery, and three squadrons of cavalry, will leave its camp north of the Workhouse at 7 A. M., and march on the road to S. S. Nottingham's, and occupy the ravine from this point to the river.

"To secure the left flank, this advance-guard will send two companies to

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occupy the Lead-works, and two squadrons into the section south of the Lead-works, where they will halt in secure places at proper points, and reconnoitre the ground between P. McKenzie's, Red House, and Globe Tavern, and keep up communication with the main body of the division.

"The main body of the division and the divisional artillery will pass the Workhouse at 7.30 A. M., and move on Cox Road, then over Wright's and Bagly's to Turnbull's.

"The Headquarters of the division will be with the head of the column.

"Patrols have been sent from the main body to the vicinity of Five Forks."

Subject-matter of the Solution.—Outpost and reconnaissance duty on the flank of a line of battle.

You are commandant of the two squadrons of cavalry:

1. Military estimation of the ground in its relations to the problem.
2. Statement of the leading thought of the plan of action.
3. Wording of the orders.
4. Tracing of the entire division, including all detachments, at 8 A. M.

19. For Captains and Subalterns of Cavalry, Infantry, and Artillery.

Map II. Atlanta Campaign II.

Situation.—In the early part of June the enemy was engaged in the siege of Atlanta.

One of our divisions was beyond Adairsville, observing the siege and watching the line of the Etowah.

On June 4th, three of our squadrons and two horse-artillery guns occupied Cartersville as an advanced post, and had a picket at Etowah Bridge in front.

On the 5th, about an hour before daybreak, the picket was attacked by the enemy in superior force, and driven in so precipitately that both picket and enemy arrived at the same moment in front of Cartersville.

The post at Cartersville was found drawn up ready to receive the picket, one squadron in front, the other two in rear, the guns posted to the south of the cemetery.

Problem.—You are in command of this post, and have received strict orders to retire if attacked in superior force.

Subject-matter of the Solution.—1. What orders are given at once?

2. Military estimation of the ground with reference to the problem.
3. Leading thought in the execution.

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4. Orders issued if forced to retire from Cartersville.
5. Tracing of next position taken up after retiring from Cartersville.

20. For Captains and Subalterns of Infantry.

Map II. Atlanta Campaign II.

Situation.—An Army Corps, encamped on the hills at Salagoa Springs, is to move to-day on the roads:

Springtown P. O.—Nannie P. O.—Hermitage and Calhoun—Danniels's Mill—Turner's Mill—Woodland.

To cover the left flank, a Brigade of Infantry entered Adairsville yesterday afternoon and detached the 5th Battalion and six horsemen to the hill north of Branson's Mill.

Problem.—You are commandant of this battalion, and receive the following orders:

"You will march from Branson's Mill at 9.30 A. M. (22d) to Cassville, then down the valley to the Etowah, keeping on the right bank, as far as Eve's Station, and take up a position near Shiloh Church.

"The brigade will begin the march from Adairsville at 10.30 A. M., and from Kingston will proceed to occupy the heights to the north of Wooley's Bridge.

"At 9 A. M. a company will advance from Adairsville to New Hope Church, and thence along the crest of the hill about 2,000 paces till beyond Sherman's, and remain at this point till the advance-guard of the brigade is on a line with it.

"According to the reconnaissance reports, the enemy's main body is on the heights to the north and east of Rome, has occupied the line from Friendship Church to Bucket's Mill, and pushed out detachments into the forest of the Etowah.

"The possession of the defiles is of the utmost importance, hence the enemy is to be attacked whenever he is met.

"Before setting out the troops must breakfast.

"Dispatches will reach me in Adairsville on the line of advance."

Subject-matter of the Solution.—1. Assuming that you arrived at Branson's Mill from Adairsville at 6 P. M., what orders will you give?

Solution.—1. To the assembled officers of the battalion and the non-commissioned officers of the cavalry detachment:

"I. The battalion will go into camp on the hill north of Branson's Mill, and continue the march to-morrow morning over Cassville, Kingston, and the right bank of the Etowah to Shiloh Church.

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"The main body of the enemy is on the heights to the northeast of Rome; the line from Friendship Church to Bucket's Mill is occupied; detachments pushed out into the woods bordering the Etowah.

"Our brigade will encamp in Adairsville.

"On our left flank we have no troops.

"We must take into consideration the possibility of being annoyed by the aforesaid detachments, and must therefore spare no efforts to take such precautions as will at least protect the main body from surprise.

"Night, and the wooded character of the country, will confine the enemy to the roads, the few lanes, and the cross-cuts.

"It will suffice, therefore, to keep these lines under observation, to include Cassville in the sector of observation, and to post a strong picket north of Hooper's, behind the line of sentinels.

"In case of attack the picket company will form line of battle and retire, if necessary, along the east of the road to the crest north of Branson's Mill.

"The main body will defend the hills to the east of Allen's.

"To-morrow at 5 A. M. the rations will be cooked; the officers will report at 8 A. M. on the square in front of the Post-Office, where further orders will be published.

"II. One section of the 1st Company will occupy as advanced post to-night the western entrance to Cassville.

"The cavalry patrol will ride to that point at once, obtain information of the enemy and await the arrival of the advanced post. On its arrival three cavalry-men will remain as messenger orderlies in Cassville, the rest will retire to camp.

"At 10 A. M. the battalion will pass through Cassville, and the section will then take its place in the column; the cavalry patrol will advance at daybreak toward Kingston and there await the main body.

"III. The 1st Company (three sections) is detailed to furnish the picket and sentinels.

"The sentinels will be placed on the line Speed's—Ogre's—Hooper's and the cross-roads at Underwood's; guides will be provided. The post on the right wing will establish communication with the outposts of the brigade by means of the road leading past Winatt's.

"The picket will encamp some 400 paces in rear of the sentinels, and send out a patrol every hour to the post at Cassville; the patrol will barricade the entrance to the village, and sentinels will be posted along the outer walls.

"No one will be allowed to enter or leave the village.

"Countersign: *Atlanta.* Parole: *Sherman.*

"The main body will go into camp at Branson's Mill; I will remain with

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the 2d Company. The alarm will be sounded at the southern entrance of the village."

Subject-matter of the Solution, continued.—2. What orders are issued to set the battalion in march on the 22d? Where is it at 10 A. M., and how is it subdivided?

Solution, continued.—2. At 8 A. M. the assembled officers of the 2d, 3d, and 4th Companies receive the following order:

"The battalion will continue its march in the direction indicated.

"The 4th Company is charged with the safety of the troops during the march, and will be subdivided as follows:

"Half company as advance-guard, taking the road Cassville—Johnson's Mill—right bank of the Etowah, to Shiloh Church.

"Hour for departure: 9.25 A. M.

"One section to cover the right flank; taking the crests parallel to the road toward Cassville, then along the crests north of the road over Best's Mill and Morrison's to Wall's.

"This section will establish communication with the company marching on the crest over New Hope Church and Sherman's, and through it transmit the following message to the brigade:

"'Detachment covering left flank at Branson's Mill. 5th Battalion.'
"'To the brigade commander.
"'*Night quiet.—Begin the advance at* 9.30 A. M.'

"Sent at 9 A. M. by: R.
"N. N."

The right flanking column will be set in march at 9 A. M.

One section to cover the left flank, taking the direction Ogre's and the entrance to Cassville; thence over Trotten's and Bridges' to Clayton's Mill and past Wooley's Bridge and over Eve's Station to Ayer's. Departure, 8.30 A. M.

Both flanking columns will receive guides, and will endeavor, after passing Cassville, to keep as far as possible in advance of the main column (some 1,000 paces); as a point of reference, the battalion will pass through Cassville at 10 A. M.

The troops designated to insure the safety of the command will mark, by the terminal positions of their line of march, the line on which the battalion is to be formed at Shiloh Church, and await orders.

The commandant of the 1st Company (Picket) receives the following order:

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"Draw in the picket so that the company will stand at the rear of the battalion, formed in column to march to the right."

The arrangement of the battalion at 10 A. M. is as follows:

1. The main body at the northern entrance of Cassville near the Cotton-Gin.
2. The right flanking column on a line with the advance-guard.
3. The left flanking column past Trotten's.

21. For Subaltern Infantry Officers.

Map X. Atlanta, Ga.

Situation.—The same as in No. 51 at 9.30 P. M., July 28th.

Problem.—The commanding general of the 4th Brigade sends the following order to Captain B., who has pushed forward to East Point with the 6th half-battalion of the 21st infantry regiment:

"My brigade has occupied Atlanta and the heights to the northwest, and is establishing outposts. The 12th Regiment remains near the Race-Course. The 2d Brigade remains at Ezra Church."

With the approval of General K., commanding the 1st Brigade,* I order as follows:

"You will take position with your two companies at Stokes's, which position you will defend in case the enemy advances again.

"As soon as the men have rested, send a patrol to East Point and Mt. Zion Church; cut the telegraph line at the former place.

"The 4th section of Squadron A of the 7th Regiment of Cavalry † you will retain.

"Grand guard No. 2, the company of Captain E., is established at Terry's Mill, and has been notified of your orders.

"All messages directed to me at the court-house of Atlanta.

"Countersign: *Chattanooga.* Parole: *Grant.*

"You are commandant of the 6th half-battalion of the 21st Infantry."

Subject-matter of the Solution.—Establishment of grand guard No. 1.

1. Estimation of the relations of the ground at East Point and Stokes's.
2. How do you intend to conduct the movement?
3. What dispositions will you make?
4. What will be the arrangement of the grand guard and its sentinels at midnight?

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* To which the 21st Infantry belongs.

† Which brought the order.

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22. For Cavalry Officers.

Maps VIII and XI. Atlanta Campaign III and V.

Situation.—An infantry division is bivouacked near Kilpatrick's Mill (about four miles north of Marietta), and has occupied, with its advance-guard, Marietta and the Black Jack Mountains; and receives orders to advance to Defour's Ferry to occupy the line of the Chattahoochee as far as Mason and Turner's Ferry.

According to the information received, the enemy's advanced troops have debouched from the hills to the west of Atlanta. A second division of infantry marches at the same time from Pine Mountain and Gilgal Church over Anderson's Mill to Mason and Turner's Ferry, to occupy the Chattahoochee from the latter point to Boker's Ferry.

Problem.—For to-morrow's advance the following orders are issued:

"The divisional cavalry (three squadrons) will break camp at 6.30 A. M. from Marietta camp-ground (in front of the Black Jack Mountains), will reconnoitre the ground, in front of the advance-guard, between Soap Creek and the road Marietta—Strickland's—Welch's—Powell's—Mason and Turner's Ferry, in connection with the divisional cavalry of the second infantry division on the southwest; and will occupy the bridges near Defour's Ferry and the crossing at Mason and Turner's Ferry, and hold them until the arrival of the advance-guard.

"The crossing will not be destroyed.

"The divisional cavalry will send forward patrols to the woods in front of Atlanta.

"The advance-guard will proceed at 6.45 A. M. from Marietta, on the road to Atlanta, and will detach a battalion to occupy Mason and Turner's Ford.

"The main body of the division and the divisional artillery will march at 6.30 A. M. from Kilpatrick's Mill."

Subject-matter of the Solution.—Reconnaissance of a district, and occupation of crossings, by cavalry.

1. Wording of the dispositions of the commander of the divisional cavalry for the advance. Statement and execution.

2. Wording of the orders for the occupation of the crossings of the Chattahoochee; when and where issued. Statement and execution. Division of the forces.

3. The advance-guard has arrived and assumed charge of the occupation. Description of the manner of assembling the divisional cavalry. How is it now to be employed? The execution of the plan.

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4. Tracing of the situation of the entire infantry division, including all detachments at 8 A. M.

23. For Captains and Subalterns of Artillery, Cavalry, and Infantry.

Map XIV. Vienna.

Situation.—Our army is advancing from the south toward Vienna, with a view to crossing the Danube bridge here. Reconnaissance detachments will cross it to-day for the purpose of occupying the ground from the defile of Lang-Enzersdorf over Zedlersdorf, Leopoldau, Kagran, Hirschstetten, to and including Aspern a. d. Donau, in order to cover the passage of the army over the river.

Problem.—You are a commandant of a detachment, consisting of the 1st Landwehr-Schützen Battalion, the 3d and 4th Companies of the 21st Feld-Zäger Battalion, one section of the 3d Dragoon Regiment and two heavy field-guns (9 cm.), and at 7.45 A. M. receive at the Praterstern * the following orders from the commandant of the advance-guard.

"Move at once toward Kagran; occupy this village, and hold the position against the attacks of the enemy with all your strength. Over the Staatsbahn Bridge detachments will move at the same time on Hirschstetten and Aspern a. d. Donau, on the Nordbahn Bridge to Leopoldau and Florisdorf with similar orders. According to trustworthy information, the enemy's cavalry arrived on the Russbach yesterday evening.

"I remain at the railroad-station in Stadlau; the train moves to that point also. Move on."

Subject-matter of the Solution.—Passage of a Defile and Deployment for Battle.

1. Estimation of the relations of the ground.

Solution.—1. I assemble the commandants of the 1st Landwehr Battalion, the half Jäger Battalion, the section of cavalry, and the section † of artillery.

After imparting the general situation, and the special duty to be performed by the detachment, I give the following orders:

To the Commandant of the Section of Cavalry:

"Lieutenant, ride at a trot at once on the road leading over the Reichstrasse Bridge to Kagran.

"It is now 8 A. M. To Kagran is a distance of 7,000 paces; you can be there in half an hour; occupy the northern entrance of Kagran; send

* Northwest corner of the Prater in Vienna, from which seven roads radiate. † Two guns.

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patrols toward Süssenbrunn and Breitenlee, and several pairs of horsemen toward Hirschstetten and Leopoldau, to establish communication with the neighboring detachments.

"Should the enemy advance against you before our arrival, hold your position as long as possible. The advance-guard of the infantry sets out immediately after you, and will therefore soon support you—I will be between the advanced patrol and the main body; send dispatches to me there. Move on with dispatch!"

To the Commandant of the half Battalion of Jägers:

"Captain, you will follow the cavalry, without halting, with two companies of your battalion as advance-guard.

"By 9.30 A. M. you can reach Kagran; occupy this town, and if you have time before the arrival of the main body, intrench yourself behind the embankment north of Kagran, and have the cavalry scour the country in front.

"It is 8 A. M. Move on."

To the Commandant of the 1st Landwehr Battalion:

"The 1st Battalion as a main body follows the advance-guard at 8.10 A. M. Designate a rear-guard.

"After crossing the north arm of the Danube, send to the right and left respectively one section of infantry as flankers, each at 200 paces from the column, directly across the country, point of direction of the right flanking column: crossing of railroad with the road Kagran-Hirschstetten; point of direction of the left flankers: the redoubt lying between Kagran and Leopoldau."

To the Commandant of the Section of Artillery:

"Your position in the order of march will be behind the company at the head of column of the battalion."

The line of march is a long bridge and dam defile, permitting the separation of the flankers only after crossing the north arm of the Danube.

The ground is covered with meadows and groups of houses to a point 1,000 paces south of Kagran, and hence affords no view of the country; and only beyond that point are the roads good and the country passable.

I must endeavor to pass this defile as rapidly as possible, and reach Kagran without delay.

Subject-matter of the Solution, continued.—2. Assumed that you are riding with the advanced patrol, which has reached the dam at the cutting on the Reichstrasse.* Here the following dispatch from the section of cavalry reaches you:

"I have crossed the arm of the Danube. On debouching from the mead-

* Street over the Reichstrasse Bridge.

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ows in front I was fired upon by the enemy, opposing my advance about 300 paces from the edge of the meadow with at least thirty men across the road behind a dam-like elevation. Half of my section is fighting on foot—pairs of horsemen are on the flanks, and with the rest I am posted on the arm of the Danube."

What will you do on receiving this dispatch ?

Solution, continued.—2. To the horseman who brought the dispatch I hand the following order to his commanding officer :

"Continue fighting on foot till the arrival of the advance-guard ; observe the conduct of the enemy and reconnoitre the ground more carefully, when the advance-guard arrives move to the inn (W. H.) on the road from Stadlau to secure the flank."

To the Captain of the two Companies of Jägers :

"Move alternately at quick and double time ; after crossing the arm of the Danube deploy in formation for combat in the meadows east of the road, and attack the enemy holding the dam 300 paces to the north of the meadows.

"Your left flank will be protected by the section of cavalry, the main body follows you.

"I will ride with the staff to the inn (W. H.) designated, and, after a reconnaissance of the ground with a view to a further advance, will issue further orders according to circumstances."

To the Commandant of the 1st Landwehr Battalion I send the following order :

"Three hundred paces from the meadows the advance of our cavalry is retarded by a subdivision of the enemy ; the advance-guard has just received orders to clear the way. Move at a rapid pace over the dead arm of the Danube, and, in case the road is not cleared when you arrive, take up a position in line of columns east of the road behind the inn (W. H.)."

Situation at 8.30 A. M.

Advance guard : two companies Jägers on the north edge of the meadows lying on the north of the arm of the Danube, attacking the dam 300 paces in front.

One section of cavalry : west of the road, to cover the flank of the advance-guard.

Main body: one battalion and two guns ; 100 paces to the south of the arm of the Danube, advancing.

Subject-matter of the Solution, continued.—3. In the face of your superior force the enemy withdraws—even before the attack begins—to Kagran. The cavalry keeping up the contact with the enemy is received on the south and

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west side of Kagran with heavy musketry-fire, and is compelled to turn back. The advanced patrol emerging from the meadow is a target for two guns of the enemy which have moved into position to the northwest of Kagran.

What decision do you arrive at; and with what measures will you carry it out?

Solution, continued.—3. I decide to *attack.*

The ground beyond the northern border of the meadows, lying to the east of the road Wien-Kagran, is level and open as far as Kagran, and at present without cover.

An attack on the enemy's left wing, which reaches to the eastern extremity of Kagran, could take place only with heavy losses, because the ground will not permit an approach under cover toward this side.

To the west of the designated road the ground, although open and level, is crossed by a dry ditch some twenty to thirty paces wide, running from the Spodiumfabrik to the southwest entrance of Kagran, with many turns and windings.

Consequently, I have decided, on account of the possibility of approaching under cover for a turning movement, to attack the enemy's right wing, in spite of the fact that the enemy's line of retreat is behind the southeast entrance of Kagran, and an attack on his left wing would at the same time threaten his line of communication.

For this purpose I assembled all the commandants of companies and of artillery and cavalry behind the embankment, lying obliquely across the northern border of the meadows, and gave them the following orders:

"As you have been informed, our duty, in the line to be occupied by the several detachments for the purpose of securing the advance of our army debouching over the Danube, is to hold the section of Kagran.

"To our left Leopoldau and to our right Hirschstetten are occupied by our troops.

"To establish communication with them, cavalry patrols have been sent out.

"The strength of the enemy before us, although not yet determined, from the fact that his advance-guard is expected only to-day in the line of the Russbach, can not be so great as to dispute the possession of the village with us for any considerable time. I will therefore attack at once.

"The 4th company of the 1st Landwehr Battalion is designated as reserve, with orders to occupy the inn (W. H.) 'Zur Stadt Gross-Enzersdorf' on the left bank of the Danube on the road, and the houses to the west thereof, with half company, and to put them in a state of defense, in order that they may serve as a point of support for our troops in case of repulse, and to cover our line of retreat on the long dam and bridge defile.

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"The 3d company of the 21st Jäger Battalion will hold the enemy in front, and for this purpose will nestle in the gentle depression of the ground, lying obliquely across the front, 400 paces north of the embankment, and keep up a well-regulated fire on the southern entrance of Kagran.

"The section of artillery will take up a position behind the embankment, where the right wing of the 3d Jäger company now stands, and fire first on the southwest entrance as an objective point, and later, when this is rendered impossible by the gradual advance of our troops, on the eastern entrance of Kagran and the line of retreat of the enemy.

"The 4th Jäger Company will detach a half company as a support for the guns, and with the other half company it will protect the right flank to a point just beyond the railroad.

"The 1st Half-Battalion of the 1st Landwehr Battalion will make an enveloping attack on the enemy's right wing, the 3d company following the reserve.

"For this purpose the dry ditch, lying 100 to 150 paces west of the road toward the southwest entrance of Kagran, is designated as the general line of advance, and the western entrance and southwestern corner of Kagran as objectives.

"The section of cavalry remains in our left flank to protect the same, and to clear up the country from Mühlschüttel to the first-class field-road leading from Kagran to Leopoldau, and will furnish two orderlies to the 1st Battalion and three to me.

"The infantry ammunition-wagon will remain near the inn (W. H.) at the bridge; the commandant of the section of artillery will select a position for the artillery ammunition-wagon.

"The field hospital will be established at the inn 'Zur Stadt Gross-Enzersdorf,' eventually near the ice-works behind the inn.

"I will remain near the Spodiumfabrik, whither all messages will be sent.

"Join your commands and execute the orders at once."

24. For Subalterns of Cavalry.

Maps VI, IX, and XIII. Region between Gettysburg and Appomattox Court-House, Petersburg and Five Forks, and Bermuda Hundred.

Situation.—The rear-guard of a large force occupies Drury's Bluff, having previously destroyed a section of railroad between Chester Station and Galloway's, near S. Coleman's.

The advance-guard of a large force is informed of this on reaching Petersburg, and sends thither two squadrons with the pioneer train to repair the same with the assistance of the country people.

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Subject-matter of the Solution.—Repair of railroad and its prevention :

1. Advance from Richmond ; measures for the protection of the working parties in detail ; work of reparation ; measure therefor (forty minutes' time).

2. The enemy's rear-guard at Drury's Bluff hears of this work, and sends from his flanking column at Chesterfield C. H., two squadrons thither to impede it and to compel the enemy to retreat before it is completed.

Description of the advance of these troops.

Routes—measures adopted by their commandant—what takes place in both parties as soon as they receive further information of each other's movements—also when they arrive in sight of one another—formations, rates of march, direction, etc., of the attack (fifty minutes' time).

3. The attack succeeds, the repairing is suspended.—What takes place in both parties. Tracing of the positions (thirty minutes' time).

25. For Captains and Subalterns of Infantry, Cavalry, and Artillery.

Map II. Atlanta Campaign II.

Situation.—A reconnaissance party, consisting of one battalion infantry, two squadrons, and two guns, was left under your command by the infantry division which returned to Kingston.

Problem.—You will escort a train composed of 100 wagons of supplies over Daniels's Mill, Adairsville, New Hope Church to Connesenna Church, where the advance troops of the division stand ready.

The enemy has several battalions in Rome. Stronger forces are concentrating at Subligna.

Subject-matter of the Solution.—Escort of a train.

1. General plan of action.

2. Wording of the necessary orders.

3. The enemy attacks you near New Hope Church with two battalions, one squadron, and two guns. Wording of orders. Execution.

4. In the midst of the execution of your last orders a dispatch reaches you that one battalion with two guns is on the way from Connesenna Church to Lumpkins's to assist you, and its head is now at Lumpkins's. Wording of orders with reference to the attack of this support, and the disposition of escort and train.

26. For Subalterns of Infantry.

Maps II and VIII. Atlanta Campaign II and III.

Situation.—The Seventeenth Corps on the Etowah, on the 29th of May, 1864, at 10.30 A. M.:

Force's brigade near Dowthait's at Good Bridge ; reserve artillery of the

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corps on the plateau to the east; to the left, on the right bank of the Etowah, on the ridge bordering the river, first Scott Brigade then Malloy Brigade, its left some 300 paces from Etowah Bridge, which was left unoccupied. The 3d Battalion of the 25th Infantry had been pushed forward to Goldsmiths'.

Problem.—You are commandant of the 3d Battalion of the 16th Infantry, which is posted at Quall's at 10.30 A. M., and you receive the following order from the Corps Commander:

"You are aware of the state of affairs and can see our position.

"The left wing of General Malloy's brigade has not occupied the Etowah Bridge at Richard's.

"March with your battalion, without delay, over Conger's to the Etowah Bridge and prevent the passage of the enemy.

"I attach to your command a section of cavalry, and will inform General Malloy of your march."

Subject-matter of the Solution.—Defense of the passages of the Etowah near Cartersville.

1. Estimation of the relations of the ground.
2. General plan of action.
3. What orders will you give? What message will you send?
4. Tracing of the position of the battalion at 12.30.

Solution.—After I had ordered the ranking captain to conduct the battalion without delay, over Conger's, and then have the first half-battalion march toward the bridge, the second to McCandless's, I rode with the section of Squadron D, 1st Cavalry, at a trot to the bridge, in order to study its position.

1. The Etowah Bridge is a wooden truss-bridge. The Etowah is not fordable to-day, its water being one yard higher than the usual level.

From this bridge one can obtain no view. The valley of the creek as far as Adam's is thickly wooded; on the right the view is limited by the steep heights on which the brigade of Malloy is posted; on the left by the heights near the dam.

The right bank of the Etowah, level and open, is bordered by the steep and wooded slope of the plateau, southeast of Cartersville.

From McGandler's or Pickett's, or from the edge of the woods, which reach the valley bottom, the bridge is in full sight, and distant some 600 paces, and the firing may be conducted under good cover, without disturbance.

Some 400 paces below the crest of the slopes a branch railroad runs along, parallel to the bank, the embankment of which is sufficiently high to cover a

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line of sharpshooters, and, together with the position in the woods will furnish so strong a cross-fire as to prevent the enemy from crossing the bridges.

2. I decide, therefore, to defend the bridges from the right bank, and take measures to direct a concentric fire upon it from covered positions.

As I have troops enough I will also occupy the railroad-bridge and the dam.

Cavalry will observe the road Cassville and Rowland Springs.

At McGandler's a company will be posted as reserve. For the sharpshooters at the crest, east of Pickett's, a trench must be dug to protect them from the fire from the heights near the dam.

As soon as the height on which Malloy's brigade now stands is abandoned, my skirmishers on the railroad must retire to the edge of the woods, but the passage may be disputed for some time thereafter.

In case retreat is necessary, I must retire on McGandler's.

3. I ride up to the first half-battalion and order:

"The first half-battalion will occupy, with one section, the branch railroad in the valley bottom, with one company, Pickett's, in the edge of the woods, and will detach a half-company, under the command of First-Lieutenant Reynolds, to the dam.

"Lieutenant Reynolds will destroy the dam, and take up a position on the nearest height and defend the passage.

"The map shows a ford at the Flour-Mill, above your position. Examine it and see if it be passable to-day, and if so, detach a section to that point.

"I apportion to you twenty cavalrymen, for you must have the roads from Cartersville toward Cassville and Rowland Springs observed. In case the enemy attempts a passage in earnest up there, I will send you re-enforcements. Your line of retreat will, in all cases, be toward McGandler's."

Thereupon I rode to the second half-battalion, and conducted it to the slope east of Pickett's and posted it in the woods.

I sent a patrol to the bend in the branch railroad.

To the Corps Commander I sent the following dispatch:

"I here occupied the woods on the slope of the hills bordering the right bank, and have a concentric line of fire on the bridges.

"On the bridges themselves one can obtain no view of the surrounding country, but is under observation therefrom.

"As I have troops enough, I have detached a half-company to the dam. Cavalry is observing the roads to Cassville and Rowland Springs. It is 12 o'clock, nothing visible of the enemy."

To General Malloy:

"By order of the Corps Commander I arrived here with the 3d Battalion

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of the 16th Infantry, to defend the bridges over the Etowah, and have just sent to the Corps Commander the following report. (Copy of Report.)"

27. For Captains and Subalterns of Cavalry.

Maps VI and XIV. Region between Gettysburg and Appomattox Court-House, and Antietam.

Situation.—A cavalry brigade retreating toward Hagerstown has entered Boonsboro, and sends back three squadrons toward Porterstown with orders to destroy the crossings of the creek near Keedysville, in order to delay the enemy's pursuit, his advanced posts having passed the eastern side of Sharpsburg.

Problem.—You are ordered to take command of the three troops and advance toward Porterstown, and destroy the bridge at Keedysville, on the Boonsboro-Porterstown road; in case you find the bridge occupied by the enemy, you will attempt to turn it by passing over the crossing at Hamilton, King's, or W. Wyand's, in order to compel the enemy to retreat toward Sharpsburg. No further detour will be attempted.

Subject-matter of the Solution.—The destruction of bridge.

1. General plan of action. (Thirty minutes allowed for solution.)
2. In advancing you receive information that the bridge is occupied by dismounted cavalry, and you decide to turn it. Where do you receive this information after the first general plan is adopted? What will you do now? (Thirty minutes allowed.)
3. General plan of action for the detour. (Thirty minutes allowed.)
4. The turning movement is successful, the enemy is retiring; what arrangements will you make? Formation, order of march, route selected, etc.

28. For Captains of Infantry and Cavalry.

Maps VI and XV. Region between Gettysburg and Appomattox Court-House, and High Bridge and Farmville.

Situation.—A reconnaissance force was sent under your command from Jamestown over Major Watson's; the force consisted of two battalions of infantry, two squadrons of cavalry, and four guns.

Problem.—You are ordered to destroy the railroad curve west of High Bridge. The enemy entered Farmville by way of Prospect Station with several battalions.

Subject-matter of the Solution.—Destruction of railroad and its prevention:

1. Estimation of the relations of the ground.
2. The leading thought in the plan of action.

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3. Execution of the plan and measures for the protection of the working parties. (Forty minutes' time.)

4. The commandant of the enemy's troops, which have just arrived in Farmville, learns that subdivisions are advancing from Jamestown to destroy the railroad curve. He decides to protect the curve west of High Bridge, and sends for this purpose a force consisting of three battalions of infantry, one squadron of cavalry, and four guns.

Orders for advance from Farmville.

5. Soon after the troops set out comes information that the enemy has been beforehand, and, under the protection of the force above mentioned, has destroyed the railroad curve.

Further orders. (Forty minutes' time.)

6. Tracing of the position.

29. For Subalterns of Cavalry, Infantry, and Artillery.

Map II. Atlanta Campaign II.

Situation.—A large body of troops is advancing from Armuchee P. O., over Kingston toward Cartersville, and sends out flanking columns to Adairsville, and over Hume's Mill to Eve's Station.

Problem.—The advance-guard reserve at the cross-roads south of Turkey Mountain sends you with five squadrons, one company, and two guns, in advance to Kingston.

The enemy disputes with you the possession of the defile of Woodland, which it holds with two companies.

Subject-matter of the Solution.—Battle for a defile.

1. Estimation of the relations of the ground.

2. Orders for the advance.

3. Conduct after receiving the information that the defile is occupied by the enemy.

4. Leading thought in the plan of attack.

5. Your attack compelled the enemy to retreat to Kingston, which is more strongly occupied. Leading thought in the plan for a further advance, and the selection of a position while awaiting the arrival of the main body, utilizing the heights about Kingston.

6. Tracing of the final position.

30. For Captains and Subalterns of Infantry.

Map II. Atlanta Campaign II.

Situation.—A large body of infantry, advancing from the north toward Cartersville, arrived, after a night march, at 7.30 A. M. at the cross-roads at

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Lynn's (about three miles north of Cassville), and is obliged to rest for at least two hours, in order to refresh the greatly fatigued troops.

Battalion No. 4 has joined the column and is in fair condition. You are its commandant. At 8 A. M. the commander of the whole calls you and gives you the following order:

Problem.—Reports have come in to the effect that hostile patrols arrived last night in the vicinity of Greenwood Church on Rowland's Bend of the Etowah River. It is essential that the hill of Leek's (near Cass Station) be occupied by us as soon as possible. Move on that point with your battalion at once.

I can not follow with the main body in less than two hours. On our right flank the 1st Brigade, with a platoon of cavalry, is advancing from New Hope Church over Best's Mill, Hains's Mill, on the hill of the Mountain Spring. The cavalry platoon will ride over Branson's Mill, and establish communication between his column and yours. Up to half-past nine reports will reach me here—later, on the line of advance. Set out at once.

Subject-matter of Solution.—1. What will you do on receiving this order?

2. The main body of the battalion is 600 paces from the northwest entrance of Cassville. You are at its *head*, and hear musketry-fire in the direction of the advance-guard; what will you do?

3. You advance at a trot with the adjutant and the battalion-trumpeters, having ordered the battalion to hasten after. At the southern entrance to Cassville an officer of the advance-guard approaches and reports:

"The *point* was fired on by hostile infantry, some 200 paces this side of the crest of the hills on which is the old line of fortifications. There are at least 200 men. Our advance-guard has occupied the houses to the right and left of the road."

While you are listening to this report, comes a commander of a patrol from the right flankers and reports:

"We are at the cross-roads near the Male College. On the hill, opposite the advance-patrol, stands at least one company of the enemy. The flanking column will advance against the left wing of the enemy."

What decision do you reach? With what orders will you carry it out?

31. For Captains of Cavalry.

Map XII. Vienna.

Situation.—The army is advancing from the north toward Vienna.

The 2d Infantry Division, re-enforced by the Corps Cavalry, as advance guard of the Army Corps coming from Korneuburg, has since 7 A. M. been

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crossing the Franz Joseph's Bridge, with orders to hold the line of the Petersbach against the enemy advancing from the south on the Reichsstrasse Wr. -Neustadt—Baden over Nendorf, until the arrival of re-enforcements sufficient to take the offensive.

Problem.—The 10th Hussars—reconnoitring in front of the division—reached the Schmelz at 7.30 A. M., and you, as commandant of the 1st half-regiment, receive the following orders from the regimental commander:

"Ride with your half-regiment at once over Schönbrunn, Altmannsdorf, Neu-Erlaa to the Petersbach. You will defend both bridges between Siebenhirten and Vösendorf against the advancing enemy, the *points* of whose columns, consisting of cavalry, arrived in Baden this evening.

"The 2d half-regiment, with which I will remain, will occupy the bridges south of Liesing with analogous objects.

"The division commander has ordered a battalion of Jägers to relieve each of us; the rest of the division will, however, rest two hours on the Schmelz; then occupy the village Liesing, Alt-Erlaa and Neu-Erlaa, and defend them to the utmost. As soon as the 3d Battalion of Jägers assumes charge of the defense of your position, move with the half-regiment, after leaving a section behind, to the north of the Park of Alt-Erlaa; the train of the regiment remains with me."

Subject-matter of the Solution.—1. How and with what orders will you set out?

NOTE.—The regiment has been mobilized but four weeks, has marched on the average for the last two weeks twelve miles a day, up to this time has always gone into cantonment, and to-day marched from Korneuburg to the Schmelz at a walk.

Solution.—1. After receiving this order, I directed the commandants of squadrons and sections to report to me and gave them the following orders:

"I have received orders to defend the two bridges between Siebenhirten and Vösendorf against the advancing foe. His cavalry arrived in Baden this evening.

"The 2d half-regiment will occupy the bridges south of Liesing. The division will rest for two hours on the Schmelz, then occupy Liesing, Alt, and Neu-Erlaa. A battalion of Jägers, which is now following us, has been designated as our relief.

"Our task consists in reaching and occupying both bridges as rapidly as possible, in order to impede the advance of the enemy's troops.

"It is now 7.35 A. M."

To carry out this plan I gave the following orders:

To the commandant of the 1st Squadron, Captain P.:

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"Move out with a half-squadron on the road over Schönbrunn, Altmansdorf, Neu-Erlaa, Siebenhirten to the kilns (Z. O.) southwest of the survey station 191, clear up the country in the section Sieberhirten-Vösendorf, then scout west of station 191 and the road to the south of Biedermannsdorf, in which section you will remain and keep close observation. Communication to be maintained with the 2d half-regiment advancing over the road Alt-Erlaa and Liesing. I ride at the head of the column of the troops following. Send dispatches on the road Siebenhirten-Neu-Erlaa.

"Ride off immediately at a trot."

I then rode at a trot with the main body, after separation of the rear-guard, toward Siebenhirten.

Subject-matter of the Solution, continued.—2. Riding at the head of the main body, you arrive in Neu-Erlaa. Are there any orders to be issued?

Solution, continued.—2. Arriving in Neu-Erlaa at the head of the main body, I give the commandant of the two sections of the 1st Squadron, 1st Lieutenant S., the following orders:

"Ride with half-squadron on the road leading in a southerly direction toward Vösendorf, and establish yourself there in a position to be defended, utilizing any means of strengthening at hand. Railroad embankment to be observed. Communication with Siebenhirten to be established. Dispatches to be sent thither to the cross-roads.

"Ride off at a trot at once; it is 8.30."

I then rode with the two squadrons to Siebenhirten.

Subject-matter of the Solution, continued.—3. You have arrived at the bridges without having discovered anything of the enemy. How is your half-regiment subdivided at this moment? What determination do you come to, and with what orders will you carry it out?

Solution, continued.—3. Arrived at Siebenhirten at 8.36, allowed the main body, consisting of two squadrons, to halt. (Half-squadron had been detached to clear up the country, and another half-squadron for the occupation of Vösendorf).

I now made a reconnaissance of the section of country assigned to me for occupation.

After convincing myself that this section is not suitable to fighting on foot—because, when I occupy the two parallel pieces of elevated ground to the south of the two cross-roads, I will have in my rear a deep creek—I determined, after leaving a non-commissioned officer to leave word where dispatches are to be sent, to advance to the tile-kilns (Z. O.), on both sides of the road to Mödling, on a line with station 195, to the east, a position which is capable of being defended to the extent required. After marching

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forward on the north side of the road, covered by the tile-kilns, I gave the following orders:

To the commandant of the 2d Squadron, Captain C.:

"Occupy at once the southern border of the tile-kilns, on both sides of the road, with the entire squadron fighting on foot."

To the commandant of the 3d Squadron, Captain G.:

"You will remain with your squadron in the reserve; send out patrols to establish communication with the 2d half-regiment in Liesing, and the half-squadron in Vösendorf; a patrol to cover the right flank on the road leading south to Brunn; then one to the west of the railroad embankment toward Mödling."

I then sent two orderlies to Captain P., with the following written order:

"Advance and clear up the country toward Mödling and Biedmannsdorf up to the Mödling-bach, where you will remain in observation. Line of retreat on the road leading north of Vösendorf, where you will again assume command of your entire squadron.

"The tile-kilns on both sides of the road, half-way between station 195 and Brunn, are occupied by the 2d Squadron, Vösendorf by two sections of your squadron. Dispatches are to be sent to me to the tile-kilns occupied by the 2d Squadron."

One of the two orderlies I send on the road toward Biedmannsdorf, the other toward Mödling, at a trot.

A third orderly I send to Vösendorf, at a trot, to 1st Lieutenant S., with the following written order:

"Dispatches are to be sent to me at the tile-kilns on both sides of the road to Mödling, half-way between Brunn and station 195."

A fourth orderly I send to the regimental commander, with the written notification of my occupation, and a statement of the reasons for the advance, at a trot.

It is 9 o'clock A. M.

Subject-matter of the Solution, continued.—4. Assuming that the 3d Battalion of Jägers left the Schmelz at 9.15 to relieve you in your position, when will it arrive on the Petersbach west of Siebenhirten?

Solution, continued.—4. At 11.05 A. M.

NOTE.—In connection herewith the battle may be discussed on the assumption that the enemy's cavalry advanced along the road from Nendorf.

32. FOR CAPTAINS AND SUBALTERNS OF INFANTRY.

Map II. Atlanta Campaign II.

Situation.—As in No. 20, after carrying out 2.

Subject-matter of the Solution.—3. Cassville has just been passed by

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the main body, when the following report arrives from the advance-guard :

"The hill to the east of Best's Mill is occupied by the enemy, we can not advance any farther ; the heights to the right and left are also occupied by the enemy. The advance patrol has deployed to the right and left of the road, and is firing."

What will you do ?

33. For Captains and Subalterns of Cavalry, Infantry, and Artillery.

Map II. Atlanta Campaign II.

Situation.—A column of troops is moving from Hermitage toward Kingston. A flanking column, consisting of three squadrons, one company, and two guns, is sent out from Hermitage to cover the left flank.

Problem.—You are in command of the flanking column, and are ordered to move along the road over Nannie P. O. and Adairsville, and to halt in a secured position at New Hope Church and await further orders.

Subject-matter of the Solution.—Order of march and attack of a village.

1. Wording of the necessary orders. (Thirty minutes allowed.)

2. Adairsville you find occupied by a detachment of the enemy, consisting of half a company, two squadrons, and two guns.

What will you do when you receive this information ? What disposition will you make for attack ? (Fifty minutes allowed.)

3. You defeat the enemy and force him to retreat in the direction of Salacoa. What will you do then ?

4. Tracing of the flanking column at the moment you receive the information of the occupation of Adairsville.

5. Tracing of the secured position at New Hope Church.

34. For Captains and Subalterns of Infantry.

Map XIV. Antietam.

Situation.—Our army occupied Sharpsburg. The 1st Brigade in and south of Sharpsburg, then the 2d Brigade, and on the height, running along Antietam Creek, near J. Ecker's, the 3d Brigade.

The enemy has driven our troops from the ridge to the east of Zimmermann's.

A battalion of the 3d Brigade advanced at about 12 M. from its position at J. Ecker's, on the left wing of the brigade, to the height to the east, Red Hill.

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The enemy attacked, but was repulsed. While the battalion was following the retreating subdivisions of the enemy, a bugle-call from the brigade sounded, at sharp 12 M., the signal to advance.

Problem.—The battalion commander, not receiving any orders to the contrary, decides to press forward up the ridge at Zimmermann's.

You are commandant of this battalion.

Subject-matter of the Solution.—1. Military estimation of the relations of the ground.

2. Leading thought in the execution.

3. Verbal orders to the company commanders.

4. Tracing of the position of the battalion on the height of Red Hill.

Supposing your movement in advance began at 12.10 P. M.:

Tracing of the position of the battalion at 12.15 P. M.

Tracing of the position of the battalion at 12.20 P. M.

35. For Captains of Infantry.

Map X. Atlanta, Ga.

Situation.—The Second Corps of the enemy was defeated by our Tenth Corps and forced to retire toward the southeast. The Tenth Corps occupies Atlanta and the heights to the west of the city. The corps commander, from observations of the movements of the First Corps of the enemy, recommends in his report of the battle of Atlanta, to the commander-in-chief, received at 1 A. M. on July 23d, that measures be taken to occupy with a sufficiently strong force the position of Howell's Mill on Peach-Tree Creek, to observe Buckhead.

The commander-in-chief of the army, at 2 A. M., ordered the Fourth Corps at Queen's Mill, three miles northeast of Lick Skillet:

"Send two battalions at once toward Howell's Mill on Peach-Tree Creek, with orders to determine definitely whether Buckhead is occupied by the enemy."

Problem.—You belong to the brigade encamped at Mason and Turner's Ferry on the Chattahoochee, and on the 23d, at 3.30 A. M., receive the following order from the brigade commander:

"The Tenth Corps defeated the Second Corps of the enemy yesterday afternoon, forcing it to retire, and occupies Atlanta, its main body encamped on the heights to the west of the city.

Tolerably reliable reports say that the First Corps of the enemy entered Buckhead yesterday evening.

The commander-in-chief and the corps commander direct that two battalions of the brigade proceed at once to occupy the position of Howell's

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Mill on Peach-Tree Creek, the commanding officer of which will determine definitely if Buckhead is occupied by the enemy.

You are designated to execute this order with the 1st and 2d Battalions of the 22d Regiment of Infantry.

The Tenth Corps has been informed directly of your mission by the commander-in-chief; put yourself as soon as possible, however, in communication with that corps.

Both battalions will take their light train.

Subject-matter of the Solution.—The head of the column leaves Mason and Turner's Ferry at 3.45 A. M., from which point it is five miles to Howell's Mill.

1. Estimation of the relations of the ground.

2. How will you carry out your mission in general; how will you march; what will take place when the main body of the column arrives at Howell's Mill; how will you conduct the reconnaissance toward Buckhead; how will you establish communication with the Tenth Corps most rapidly?

3. Tracing of the situation of your column the moment the main body turns from the road Moore's Mill-Buckhead toward Howell's Mill.

At what o'clock will this take place?

4. Tracing of the situation half-hour later.

5. Tracing of the situation three quarters of an hour later.

6. What orders do you give to the detached commanders (the one required to move along the creek, for instance)?

What special measures are you compelled to adopt (as there is no cavalry available, for instance, for carrying dispatches, horses and light vehicles for this purpose must be collected in passing along)?

7. Did you send off any messages before reaching Howell's Mill? To whom? How were they worded?

36. For Captains and Subalterns of Infantry, Cavalry, and Artillery.

Maps VI and XIV. Region between Gettysburg and Appomattox C. H., and Antietam.

Situation.—The position Bakersville–Smoketown–Keedysville–Springvale is to be defended in order to cover the passage of the army over the Potomac from the right to the left bank, and after its debouch the troops in this position are to take the offensive on the road toward Gettysburg.

Problem.—Keedysville is regarded as the key-point of the line, and is to be held against a direct attack from Boonsboro.

The front of defense is limited on the west by the bridge over the creek

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on the western side of the village, on the east by Spielman's. The sector to be commanded extends from J. A. Thomas's to E. Baker's.

Subject-matter of the Solution.—Defense of a village.

1. General plan; advantages and disadvantages of the position.
2. What force is necessary for a successful defense?
3. How and where will these troops be posted?
4. What arrangements for temporary defense can be made between 8 A. M. and 2 P. M. in weather like to-day's? What orders will be issued for this purpose?
5. What position will be selected for the artillery?
6. Where would the reserve, if any, be posted?
7. Tracing of the position after all the arrangements are completed.

37. For Captains of Infantry and Artillery.

Map XVI. Gettysburg.

Situation.—An army advancing from the south has reached J. Want's, with one column over Emmetsburg, and Power's Hill by way of Harney P. O. and J. Eckenrodes.

It is 10 o'clock, A. M.

The right column, after a severe fight, took Power's Hill, and the battle is moving on McAllister's Hill, over which subdivisions of the enemy are slowly retiring. The enemy does not seem to place much value on the Baltimore Pike, since our troops are visible in that direction; on the contrary our cavalry patrols, approaching the woods of the hill between J. Swisher's and George Weikert's were repulsed by strong musketry-fire.

On the left the work is more difficult. The peach-orchards of J. Want are in our possession, but an attack on J. Want's house and J. Sherfy's was repulsed.

The commandant of the first column concludes that the best way of facilitating the advance of the left column will be by clearing and occupying the woods between J. Swisher's and George Weikert's.

Problem.—At 10 A. M. he gives Lieutenant-Colonel L. the following verbal order at the cross-roads near Power's Hill (commanding a good view of the country):

"As you see, the fight of the left column in front of Cemetery Hill has come to a standstill.

I will nevertheless attempt to push forward to the creek, but for this purpose it will be necessary to secure the woods. Our appearance there will also simplify the work of the left column.

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In the woods there is hostile infantry, for our cavalry patrols are continually repulsed by musketry-fire.

You will carry the woods with the 2d and 3d Battalions of your regiment, and half of Field-Battery E, 1st Artillery, and hold them. Whatever else you can do to threaten the left of the enemy in front of our left column, you will do.

I place under your orders also the section of the 1st Cavalry, which has just arrived here.

The 1st Battalion of your regiment will occupy Power's Hill, the 1st Battalion of the 10th Infantry I will order to advance on the Baltimore Pike as far as the bridge.

In case you are compelled to give way, take the shortest route to Little Round Top Hill, and take up a strong position there.

Your messages you will send to this point.

If everything goes well with you and on the left, and I have secured the line of the creek, I will direct all the wounded to Jac. Swisher's and establish the field-hospital there.

I have just signaled your mission to the commander of the left column; it is probable that he will combine a renewed attack with your advance."

Subject-matter of the Solution.—Attack of woods.

1. Estimation of the relations of the ground.

2. How do you intend to carry on the attack? Discussion of the plan.

3. Wording of the verbal orders, which Lieutenant-Colonel L. gives to the assembled staff-officers, captains of artillery and infantry, etc.

4. While you are giving these directions, the head of column of the troops assigned to your command arrives 500 paces south of the cross-roads. The column halts. It was 10.20 o'clock, A. M., when the movements you ordered began.

5. Tracings of the position of the troops:

(*a*) At 10.30 A. M.

(*b*) At 10.40 A. M.

38. For Captains and Subalterns of Infantry, Cavalry, and Artillery.

Map VIII. Atlanta Campaign III.

Situation.—The main body of our own army is retiring from Tumblin's Ferry on the Etowah, toward the north. The rear-guard at Macedonia Church, on the road, learns that the enemy's advanced troops have arrived at Salem Church.

Problem.—You are ordered from the rear-guard with two Battalions of

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infantry, a half-squadron of cavalry, and two guns, with the following order:

"Advance on the road over Macedonia Church to the heights above Collester's Mills, observe the ground in front, the road to Salem Church, the heights bordering Euharlee Creek, and the woods bordering the Old Alabama Road. The rear-guard will leave the position at the church occupied.

"In case you are not attacked by superior forces, you will remain in your position until further orders. At all events, the enemy is to be resisted with all possible energy."

Subject-matter of the Solution.—1. Military estimation of the ground with reference to the problem.

2. Leading thought in the execution.

3. Wording of orders.

4. Your opponent attempts to gain the heights, and comes in contact with you on your arrival at the southern border of the plateau above Collester's Mills.

Description of his advance—description of your position at this moment. You defeated him—wording of your further orders—conduct of your opponent.

39. For Captains of Infantry, Cavalry, and Artillery.

Map XVII. Harper's Ferry.

Situation.—A division of infantry is stationed at Harper's Ferry.

Problem.—A detachment, consisting of two battalions, two guns, and one squadron, under your command, is sent over Sandy Hook with directions to occupy Brownville as rapidly as possible, in order to impede the passage through the defile there of the enemy advancing from Rohrersville.

Subject-matter of the Solution.—Defense of a defile.

1. Plan of action—wording of orders.

2. The enemy enters the defile at Brownville as your head of column reaches Weaverton, but his advance-guard has not yet debouched.—Wording of new orders.

3. In the midst of the combat you receive the following order:

"Your division of infantry is retreating up the Shenandoah Valley, and you will break off the battle and retire over Sandy Hook."

Wording of orders consequent thereon.

4. Tracing of the position of the troops at the time the last order was received.

5. Tracing of the position of the troops after the retreat commenced.

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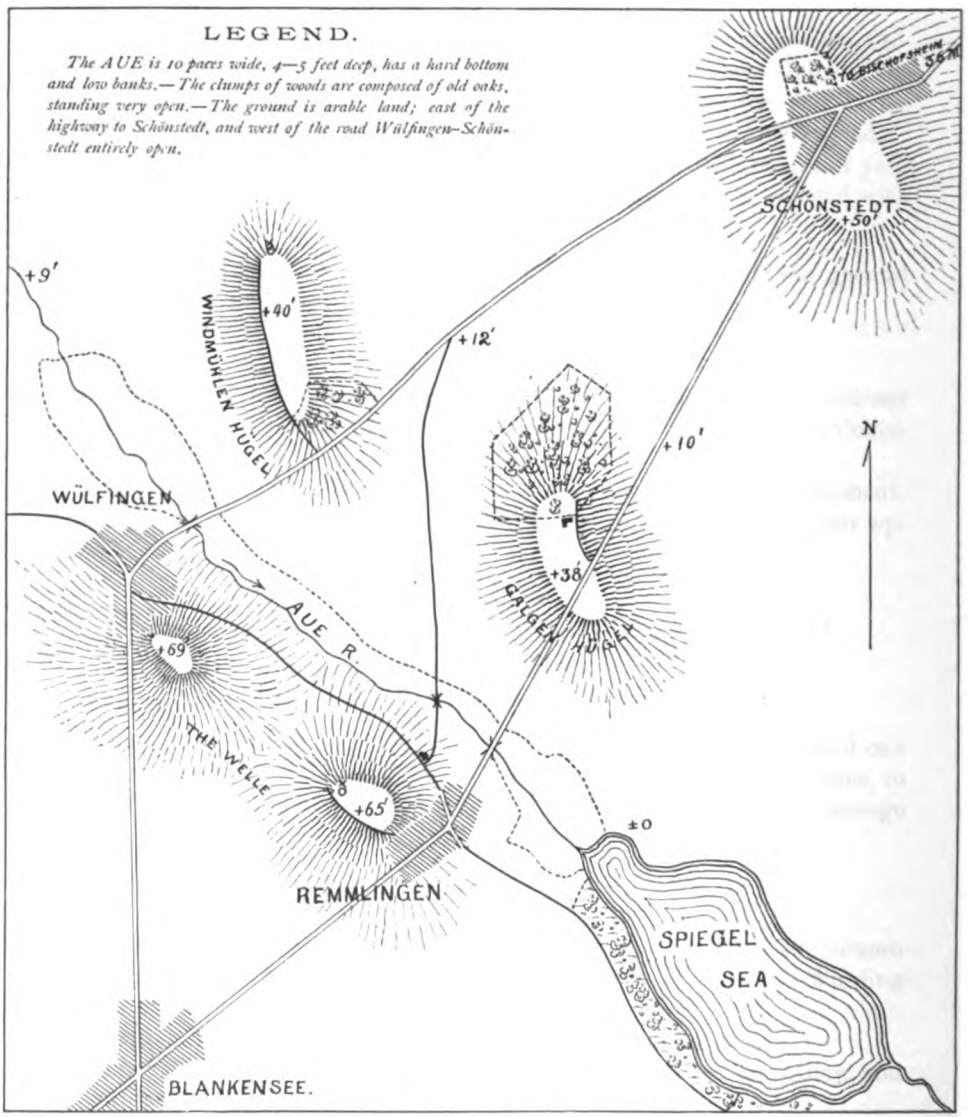
XVIII. BLANKENSEE.



40. For Captains of Infantry and Cavalry.

Map XVIII. Blankensee.

Situation.—A south detachment defeated the enemy on the southeast of Blankensee, and threw him back on Schönstedt. At noon the main body of the south detachment went into bivouac on the southwest border of Blankensee. Lieutenant-Colonel N. received orders to establish outposts on the Aue with the 1st and 2d Battalions of the 79th Regiment of Infantry, and the 1st Squadron of the 16th Dragoons.

Problem.—Orders for the establishment of the outposts by Lieutenant-Colonel N.

Solution.—The preceding problem characterizes the military situation only in so far as it is necessary for the commander of the outposts to be acquainted with it, in order to post his outposts properly. The question may indeed present itself as to what may have influenced the detachment commander to discontinue the pursuit so early as noon, and if he simply intends to cook rations and continue the march in the afternoon. But these questions are not answered by the problem, because the information accompanying an order in time of war is generally very limited—seldom more than the absolutely essential is made known to the subordinate, and occasionally conclusions must be drawn in cases where the situation can not be grasped at all.

The works on the tactics of field duty contain the fundamental principles according to which outpost duty is to be conducted, but only the fundamental principles, as it is particularly stated that—

"On account of the variety of circumstances, the objects to be fulfilled, and the various configurations of ground, it is impossible to prescribe rules for all cases relating to the establishment and the duty of outposts."

By this is meant that all methods prescribing fixed rules for action are inapplicable to this branch of warfare, and, indeed, to war in general. It is only necessary to determine, What is the object of this? He who, in any military situation, answers this question, and takes measures accordingly, runs much less risk of making a mistake than he who attempts to assimilate the case before him to a prescribed model.

Let us first obtain a clear view of the military situation as set forth in the problem.

To the southwest of Blankensee the south detachment delivered a victorious battle and forced the enemy back on Schönstedt. The commander of the south detachment decided to discontinue the pursuit, and to go into bivouac with the main body on the southwest border of Blankensee, and post outposts on the Aue.

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What, therefore, is expected of the commander of the outposts? To determine how far the enemy will continue his retreat, where the halts, and, furthermore, to secure the bivouac of the main body on the southwest of Blankensee against attack. To meet the first object the commander of the outposts will probably send forward cavalry patrols, or, if he fears that these are insufficient, larger bodies of cavalry, to pursue the enemy until he halts, to determine the line on which he establishes his outposts, and then to return at once to the main body of the outposts. Under cover of this cavalry, the rest of the troops designated to form the outposts will probably halt, ready for battle, about the foot of the southwest slope of the Welle, and the commander of the outposts will meanwhile, with the assistance of the map, attempt to obtain a view of the ground to be selected for insuring the safety of the main body. The directions given by the detachment commander, to establish the outposts on the Aue, can only serve as a general guide to the outpost commander; for such directions result mostly from a mere reading of the map, and always leave to the commander of the outposts a certain latitude. The only definite conclusion to be drawn from these directions is that in case of an attack by the enemy the Aue district should be held by the outposts in order that the main body in bivouac behind may not be in danger.

The outpost commander will very soon decide upon the crest of the Welle together with the two villages on the wings, as the most suitable position for defense. The position has a strong obstacle in front, and confines the columns of attack of the enemy largely to the two road bridges. From this the following rules for action follow: Occupation of the villages Wülfingen and Remmlinger by infantry pickets, pushing out the cavalry to the Windmühlen and Galgenhügel, to observe the ground in front, and holding in readiness the main body of the outposts between the aforesaid villages, on the southwest slope of the Welle.

The commander of the outposts will then call the mounted officers about him and give them the order for the establishment of the outposts.

Such an order must contain:

Reports relating to the enemy, as far as may be necessary, in order that the troops may execute their duty properly.

Position of the main body of our own troops in bivouac or cantonment.

The orders received by the outpost commander.

Subdivision of the troops to carry out the orders received.

Countersign and parole.

The outpost order is generally *verbal*. In this case it would be worded somewhat as follows:

"The enemy has been thrown back on Schönstedt.

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"The main body of the south detachment will bivouac on the southwest border of Blankensee.

"I have orders to establish outposts on the Aue with the 1st and 2d Battalions of the 79th Infantry Regiment and 1st Squadron of the 16th Dragoons.

"Captain Z. has been sent out by me with half the 1st Squadron toward Schönstedt, with orders to determine where the enemy is standing, and then to return to the main body of the outposts. Of the other two sections of the squadron one, under your command, Lieutenant A., will advance, as cavalry outpost No. 1, to the Galgenhügel, and secure from that point the road Remmlingen-Schönstedt. The last section of the squadron, under your command, Lieutenant B., will advance, as cavalry outpost No. 2, to the Windmühlenhügel and secure from that point the road Wülfingen-Schönstedt.

"Two companies of the 1st Battalion will bivouac as picket No. 1, at Remmlingen, two companies of the 2d Battalion as picket No. 2. at Wülfingen.

"The rest of the troops, viz., two companies of the 1st and two companies of the 2d Battalion, and, after their return, the half-squadron of Captain Z., will bivouac as main body of the outposts at the foot of the southwest slope of the Welle, between the roads. You, Major C., will please assume the duty of commander of the camp of the main body of the outposts.

"Countersign: 'Kleeblatt!'

"Parole: 'Frederick!'"

In time of war the order will rarely be given in written form to be carried in the saber-tasche of the staff-officer, but in the manœuvres, it is often required to put it in the *form* of a written order, merely for the sake of practice. In such orders all details, usually added by the way of explanation in verbal orders, should be omitted.

We will, therefore, repeat the above order in the *written* form.

Order for Establishment of Outposts.

"On the Welle at Remmlingen, *September* 1, 188–, 12.30 o'clock, P. M.

"1. The enemy has been thrown back on Schönstedt.

"2. The main body of the south detachment will bivouac on the southwest border of Blankensee.

"3. I have orders to establish outposts on the Aue with the 1st and 2d Battalions of the 79th Infantry Regiment and the 1st Squadron of the 16th Dragoons.

"4. Captain Z. is reconnoitring against the enemy with a half-squadron, and will return, later on, to the main body of the outposts. Of the other two sections of the squadron, one will advance as cavalry outpost No. 1 to

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the Galgenhügel to guard the road Remmlingen-Schönstedt, the other as cavalry outpost No. 2 to Windmühlenhügel to secure the road Wülfingen-Schönstedt.

"5. Two companies of the 1st Battalion will bivouac as picket No. 1 at Remmlingen, two companies of the 2d Battalion as picket No. 2 at Wülfingen.

"6. The rest—two companies of the 1st and two companies of the 2d Battalion, and later, the half-squadron of Captain Z.—will bivouac as main body of the outposts on the southwest slope of the Welle, between the two roads.

"7. Countersign: 'Kleeblatt.'

"Parole: 'Frederick.'

(Signed) "N.

"*Lieutenant-Colonel and Commander of the Outposts.*"

In such written orders, which always require more time than the verbal, and for which, therefore, the troops must wait for a longer period of time, it is necessary to be as brief as possible, without thereby sacrificing clearness of expression, in order not to try the patience of the troops who are waiting for it.

Let us consider now the separate arrangements contemplated by the order.

The disposition to be made of the heavy baggage is wanting. The latter will generally be kept in rear whenever an engagement is probable. Immediately after the battle the leader of the troops issues the most essential orders relating to the outposts and the main body, generally verbally, to bring the troops as rapidly as possible to rest. At the same time he will send to the rear for the heavy baggage, provided the military situation permits. But hours often pass before the heavy baggage arrives. It is assumed here that the outpost commander has as yet received no directions from his detachment commander relative to the heavy baggage, and that these are to come later on.

The position of the outposts for the night is not yet ordered. When outposts are established as early as 12 o'clock noon, it is not advisable to give the orders for the night at once, since it is a question whether the relations may not be entirely changed by evening. The issuing of orders prematurely is of very doubtful advantage, as it has a bad effect on troops, and impresses them with a feeling of insecurity to have orders revoked. The outpost commander is, moreover, so near his subdivisions that he can issue his orders for the night at any time.

The villages Remmlingen and Wülfingen are occupied by a comparatively

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strong force, because they constitute almost the only objects of attack for the enemy. Although the companies are required to observe here a greater degree of alertness to hold themselves in readiness for battle than in the main body of the outposts, they still have the advantage of the close proximity of the villages to obtain the requisite material for the bivouac. It would not be wrong to occupy each of the villages with but one company. On the other hand, it would be entirely proper, in case the enemy had been totally defeated, or the weather proved unfavorable, to quarter the entire outpost detachment in the two villages, and secure it against surprise by cavalry outpost as before, together with an infantry outpost at each of the bridges over the Aue.

Two companies of each battalion, instead of one entire battalion, were designated to furnish the pickets, so that, in case the re-enforcement of one should become necessary, it may be effected from the same battalion and remain under the same commander. Nevertheless, it would not be wrong to break up a battalion and post the parts in the pickets, for this would have the advantage of keeping an entire battalion in the main body of the outposts. In the first case the units are broken up in time of quiet, in the latter the units are intermingled in the battle.

To prescribe to the pickets and outposts, the posts to be established would be a mistake. Nevertheless, the outpost commander is required to inspect the posts established and, if necessary, to alter them, since he is personally responsible for the disposition made. Neither should the outposts commander say, as occurs again and again, that a constant patrolling is to be kept up, since this is always required, and by ordering it one time, there is great danger of its being neglected the next when not specially ordered. Only when a patrol is to go beyond the prescribed limits should it be specially mentioned by the commander of the outposts. The latter generally goes into bivouac with the main body of the outposts; still, it is best to detail the next in rank as commandant of the camp, as he himself is often compelled to leave the main body of the outposts and go to the front.

The commandant of the camp of the main body of the outposts must designate at once the places for bivouacs, and then determine whence the necessary material is to be obtained. The companies of the 1st Battalion, as well as the cavalry, will probably be directed, for this purpose, to Remmlingen; the companies of the 2d Battalion to Wülfingen. The horses will be watered, if there is no appropriate place in either of the two villages, at the ford north of Remmlingen. The commandant of the camp will then detail officers of the day and of the guard. To inclose the camp and guard against surprise, *camp-guards* will be established, and, to guard the interior of the bivouac, *interior guards.*

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The camp-guards should be so posted as to surround the bivouac on all sides at a distance of two hundred or three hundred paces, the separate guards being about five hundred paces apart. The tactics says that the commandant of the camp may, however, under certain circumstances, vary this distance. In case the discipline of the troops has become loose, or desertions are to be feared, a closer confinement of the camp is preferable. The same will be required in a district which furnishes no outlook, and hence is favorable to surprise. In the case before us, two camp-guards will be quite sufficient by day. One will be some two hundred or three hundred paces in front of the camp, hence, on the southwest slope of the Welle. It should have one sentinel's post and two double posts. Double post No. 1 should be pushed out in the direction of the height + 65′ so far that it can observe cavalry outpost No. 1, and double post No. 2 in the direction of the height + 69′ so far that it can observe cavalry outpost No. 2. The second camp-guard should be posted in rear of the bivouac, facing to the south, and should have orders to prevent all unauthorized communication between the outposts and the main body of the detachment. It should establish one sentinel's post and two double posts on the roads to Blankensee.

Each of the camp-guards should consist of one sergeant, two corporals, to post reliefs and carry reports, one trumpeter, fifteen privates, as sentinels, one stove-tender.

Of the troops in the bivouac of the main body of the outposts the infantry will keep on its equipments, the cavalry (and artillery) can not unsaddle (nor unharness). Only by subdivisions can rations be cooked, horses fed or watered, or saddles changed.

After issuing the outpost order the commander of the outposts will generally remain in the bivouac of the main body of the outposts till the pickets and outposts are established, which, in this case, will be about half an hour. Then he will ride along the outpost position, make the necessary alterations, and reconnoitre the ground with reference to the position to be selected for the night. He will probably mount his horse again at one o'clock, and ride over Remmlingen, the Galgenhügel, the Windmülhenhügel, and back over Wülfingen.

Let us now proceed to the pickets and outposts, and discuss the positions to be made by each independently.

The commander of picket No. 1, the ranking company commander of the two sent to Remmlingen, will be required to select, first of all, the places of bivouac for the two companies. An open place in the village, a large court or garden, so situated that deployment may take place in any direction, is to be preferred to a bivouac in open field, since such a place will be protected from the view of the enemy on the one hand, and offers a protection for the

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troops against the effects of the weather on the other, without rendering them less perfectly prepared for battle. But if the company commander fears that he may not have his men so well under control as to prevent them from running about to the houses, he must look for a place of bivouac outside of the village. Let us assume that the commander of picket No. 1 found an open place in the northern part of Remmlingen, on the main street, sufficiently large for the camp of a company, and in the southern part of Remmlingen a court-yard of sufficient size; he will encamp the two companies at these places; he himself will remain in the vicinity of the company which is encamped in the northern part of the village. Each of these companies will establish a post with one sentinel, and detail an officer of the day to preserve order. The company in the northern part of the village will post, besides, a double post at each of the two northern entrances, the other company a double post at each of the four other entrances to the village. An officer of the rounds will be detailed to visit these posts. The degree of preparedness must be the same in these two companies as in the main body of the outposts.

Cavalry outpost No. 1 will be most appropriately established at the foot of the southwest slope of the Galgenhügel on the road. The men of the outpost are dismounted by detail, the horses saddled. Saddles are changed only by subdivisions; feeding and watering take place in the same way. The rations for the outpost are cooked by the nearest company in Remmlingen, which is, moreover, required to furnish all the necessaries for the outpost. The sentinel is on foot in the road, rifle in hand. The outpost will push out a vedette on the road to Schönstedt as far as the top of the Galgenhügel, and establish a detached post, consisting of seven mounted men under a non-commissioned officer, in the northern extremity of the wood. The vedette, as well as the non-commissioned officer's detached post, are at a halt, mounted, with carbine in hand. A special *examining troop* it is unnecessary to form, since the sentinel can plainly see when any one passes the vedette, who is posted close in front of him.

The patrolling, which the commander of the outpost should order, will depend upon how far the enemy retreated. Let us assume in this case that the cavalry, sent out by the commander of the outposts at noon, returned with the report that the enemy has occupied Schönstedt, then, in case the vedette posted on the Galgenhügel can not see the enemy's vedette standing near Schönstedt, a patrol must advance from time to time so far on the road till it becomes aware of the presence of the enemy. Another stronger patrol must seek to ride around Schönstedt in a southeastern direction, in order to obtain information as to the position of the enemy's pickets and main body.

Cavalry outpost No. 2 will most appropriately take up its position on the

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road Wülfingen-Schönstedt, on the southwest edge of the wood, on the road leading to the windmill. It will, besides establishing a post with one sentinel, push out vedette No. 1 on the road to Schönstedt as far as the edge of the wood, with a detail of four men under a non-commissioned officer as *examining troop* close behind, and establish vedette No. 2 at the windmill to observe the ground north of the Windmühlenhügel. Patrols must be sent forward toward Schönstedt and around the west of Schönstedt.

The arrangements of the commandant of picket No. 2 will correspond to those adopted in Remmlingen.

The commander of the outposts will return to the main body of the outposts, after his ride to inspect the outposts, between 2 and 3 P. M., and will at once send a written report to his detachment commander on the position of the outposts and of the enemy. The proposed position for the night will also be given in this report. During the ride of reconnaissance, the directions relating to the night position are given to the commanders of the two pickets verbally. The position for the night must be taken before dark, otherwise the sentinels will not know where they are.

A complete chain of double posts and outposts along the Aue during the night is not necessary. The Aue is, indeed, not an absolute obstacle, but at all events one which will not be crossed in the dark, especially by a defeated enemy. On that account the commandant will limit himself to occupying the two road bridges and the ford, and observe the Aue by sending patrols along the southern bank. The advance cavalry, as is usually the case, will be drawn in to the main body of the outposts.

In order that the troops may comprehend the situation, the following order is given to the first sergeants:

BIVOUAC OF THE MAIN BODY OF THE OUTPOSTS, *September 1, 188–*,
5.30 o'clock, P. M.

"1. The enemy has occupied Schönstedt.

"2. The position for the night will be taken up at 7 P. M. as follows:

"Picket No. 1 will occupy with one outpost (No. 1) the road bridge over the Aue at Remmlingen and the ford; picket No. 2 with one outpost (No. 2) the road bridge over the Aue at Wülfingen. The southern bank of the Aue between the road bridges will be observed by patrols.

"3. As soon as the double posts are posted, the commanders of the pickets will send the cavalry outposts stationed in front of them back to the main body of the outposts. The troop will furnish each of the two infantry outposts with two mounted orderlies.

"4. To-morrow at 5 A. M. the position for the day will be resumed.

(Signed) "N.

"*Lieutenant-Colonel and Commander of the Outposts.*"

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After issuing this order, the commander of the outposts will direct the commandant of the camp of the main body of the outposts to push out at nightfall a second camp-guard in front of the camp, in such a manner that four double posts will be established in the direction of the two heights + 65′ and + 69′.

Toward 7 P. M. the commander of the outposts will prepare the position for the night.

Let us see how the commander of the two pickets will have to act.

The commander of picket No. 1 will send from the company encamped in the northern part of Remmlingen an outpost some forty strong toward the road bridge over the Aue. The latter will establish, a post of one sentinel, a double post on the road to Schönstedt, about 300 paces in front of the bridge, the relief of this post close behind as *examining troop;* in the open field another double post on either side to right and left of this double post, drawn back toward the Aue*; on the south bank of the ford a detached non-commissioned officer's post consisting of one sergeant, one corporal, and eight men. Patrols will be sent from the outposts on the road to Schönstedt, as far as the forester's house on the Galgenhügel, and from the detached non-commissioned officer's post along the southern bank of the Aue toward outpost No. 2. The outpost will be constantly on the alert and prepared for battle. The lighting of fires is forbidden. The sentinels will not remove their knapsacks or equipments, will stand with musket at arms port, and will not sit or lie down. The other dispositions ordered for the day in Remmlingen will remain in force during the night.

The commander of picket No. 2 will send out an outpost from Wülfingen to the mill on the bridge of the Aue. The latter will, like outpost No. 1, establish three double posts† with an *examining troop.* Patrols will be sent on the road to Schönstedt as far as the northeast edge of the wood on the Windmühlenhügel, and along the southern bank of the Aue toward the detached non-commissioned officer's post of outpost No. 1, at the ford.

The commander of the outposts must, however, obtain definite information as to whether or not the defeated enemy leaves his position under cover of the darkness and retreats, and if so, whither; for if, in the morning, the touch of the enemy is lost, the commander of the outposts will be greatly blamed. Schönstedt is too far distant for infantry patrols; for that reason the commander of the outposts must, at nightfall, send forward continually patrols of cavalry, taking such men as were not on duty as outposts, to Schönstedt, to determine whether or not the enemy remained, or whether he is retiring or has already retired. In like manner the commander of the

* The two double posts to right and left of the road might, perhaps, be dispensed with. † Ibid.

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outposts will employ a part of the cavalry not used for outpost duty at early dawn to constantly observe the enemy, in order to learn betimes the measures he may intend to take, and report accordingly.

41. For Captains of Cavalry, Infantry, or Artillery.

Map II. Atlanta Campaign II.

Situation.—A subdivision of the enemy's army, advancing from Allatoona against Calhoun was defeated on the afternoon of the 20th, between Cassville and Adairsville.

The pursuit was broken off, with the approach of night, at Cassville.

In the early dawn the retreat is continued in the direction Cartersville-Allatoona; our army follows, without being able to break the tactical order of the enemy.

One of our corps, coming up from Dallas, arrived on the evening of the battle at the Lamp-black Factory, its advance-guard at Rowland's Mill. In this position the night was passed.

On the 21st, at 3.30 A. M., a half-squadron advanced to the hill at Goldsmith's; at 5 o'clock the advance-guard and main body were to set out.

At 4.30 A. M. the commander of the corps, then with the advance-guard, receives the follwing report from the cavalry outpost:

"It is 4 o'clock. We are on the height at Goldsmith's and see troops on the main road Cass Station-Cartersville, marching toward Cartersville.

"At this moment infantry is crossing to the left bank at Quinton's Ferry.

"A farmer says, a quarter of an hour ago hostile cavalry crossed Pumpkin-Vine Creek in the direction of Allatoona."

A few minutes later:

"There are two guns and one or two battalions of the enemy moving in the direction of Quinton's Ferry-Goldsmith's. Now a mounted patrol is moving along this way. On the main road Cassville-Cartersville many troops, point of direction Cartersville."

Problem.—The commandant gives the commander of the advance-guard the following order:

"You hear what our cavalry reports.

"At this moment the enemy's columns, which crossed at Quinton's Ferry, must be between that point and Quall's.

"We must endeavor to delay the enemy and hold him.

"The advance-guard will break camp at once and occupy the heights southwest of the cross-roads near the ferry, in order that the main column, which I will cause to break camp at once and move up, may deploy.

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"In case the enemy is met on these heights, attack at once; he can not be very strong as yet."

The advance-guard consists of two battalions, two horse-artillery guns, and, after the necessary detachments are sent out, a half-squadron.

Subject-matter of the Solution.—1. Military estimation of the ground.

2. Leading thought in the advance and attack.

3. Orders of the commander of the advance-guard.

4. Tracing of the subdivision of the troops half an hour after the main body of the advance-guard breaks camp.

42. For Captains of Artillery, Cavalry, and Infantry.

Map II. Atlanta Campaign II.

Situation.—The army corps composing the right wing of an army advancing from the north on Dallas, has, on the evening of the 18th, its 1st division in and near Calhoun, the 2d and 3d near Sonora P. O., Lowry's Store, and Parker's.

The army corps occupy the line: New Hope Church—Cassville—Mount Zion Church, on the 19th; Stilesboro—Raccoon Church—Cotton-gin Press, on the 20th.

The 1st Division is ordered to move over the road Calhoun—Adairsville—Kingston—Euharlee.

The 2d and 3d Divisions over Sonora P. O.—Parker's—Salacoa—Cassville—Cartersville—Rowland's Mill.

Problem.—The commandant of the 1st Division gives Colonel A., of the 1st Brigade, on the evening of the 18th, the following order:

"The army will continue its march on Dallas to-morrow.

"While the 2d and 3d Divisions will advance with the corps headquarters along the road over Parker's to Mount Zion Church and Cassville, my division will march over Adairsville to Mount Hope Church and the advance-guard push out to Howard's and Proctor's. The 10th Battalion will remain overnight in Woodland, the 4th near Dermont's.

"You, with your regiment, three squadrons (1st, 2d, and 3d) of the 1st Cavalry, and four guns, will cover the march and night position of the division on its right flank, and for this purpose you will proceed to-morrow over the Academy (southeast of Springton P. O.), Johnson's, Woodland, reconnoitring through the wooded hills to the west, to Proctor's.

"You will occupy the hill near Proctor's during the night with a suitable force.

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"To-morrow you will reconnoitre the road Springton P. O.-Hermitage, and on the day after to-morrow, while you continue your march with your main body over Eve's Station to Macedonia Church and there await further orders, you will clear up the road to Friendship Church by means of cavalry and reconnoitre on the road toward Rome.

"The head of the main body of the division will break camp to-morrow, as well as the day after, at 5 A. M.

"All the subdivisions will take their train."

Subject-matter of the Solution.—1. Military estimation of the ground.

2. Leading thought in the execution.

3. What orders are given?

4. Tracing of the situation of your command at 9 A. M. on the 19th, and during the night of the 19th and 20th.

43. For Captains of Infantry, Cavalry or Artillery.

Maps II and VIII. Atlanta Campaign II and III.

Situation.—On the 20th of July:

The enemy: The Tenth Corps at Cartersville. The Fifth and Ninth Corps, the 1st, 2d, and 3d Reserve Cavalry Division, and the 1st New Hampshire Cavalry Division in and near Allatoona. The Third Corps at Kingston, one of its brigades detached at Rome.

The Second Army Corps with Macomb's brigade of the Tenth Army Corps in and near Marietta, the main body of the Army of Georgia advancing from Lawrenceville to Atlanta.

Our army: Right wing (Army of the Tennessee) on the road Elijay-Cassville, First and Second Army Corps across the Chattahoochee, the advance-guards on the line Pine Log—Hickory—Cumming—Suwanee.

We have occupied Dalton.

Problem.—You are in command of a reconnaissance party consisting of three squadrons, two battalions, and two horse-artillery guns, and have arrived from Spring Place at Calhoun at 7 o'clock P. M. and decided to remain there overnight.

Subject-matter of the Solution.—1. Estimation of the ground.

2. What precautions were taken for the night-halt?

3. What orders did you give?

4. Tracing of the position of the reconnaissance party on the night of the 20th and 21st at midnight.

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44. For Captains of Cavalry, Infantry, and Artillery.

Maps II and IV. Atlanta Campaign I and II.

Situation.—As in No. 43.

Suppose the corps constituting the right wing of our army had been directed over Greysville-Dalton or Adairsville, and had arrived at Dalton some time to-day.

Problem.—In the evening you receive from the corps commander the following order:

"The corps will advance to-morrow, the 21st, as far as Calhoun and Sonora, the day after as far as Salacoa and Adairsville.

"At Rome there is a bridge over the Oostenaula, which the corps commander desires to have destroyed.

"You will execute this.

"To-morrow at 6 A. M. the following troops in the camp of the 16th Division will await your orders ready to march: four battalions, a half-company of engineers, two squadrons, half-battery.

"All the troops have their trains, rations, and forage for the 21st, 22d, and 23d.

"You will take command and march this column to-morrow as far as Villanow; on the 22d continue the march.

"A second column under Colonel B, of the same strength and composition as your own, I will direct to-morrow over Mill-Creek Church and Simmons's Mill to Sugar Valley, where it will remain overnight, in order to advance on the 22d as far as Rome, with a view to destroying the Oostenaula Bridge there.

"According to the reports thus far received, there is a hostile detachment in Rome; but it is not improbable that, in the mean time, or perhaps in view of your advance, it may retire and destroy the bridge.

"If not, you will make an attack on the town. Should you be compelled to retire, you will move on the main road toward Dalton, but no farther than may be absolutely necessary.

"You will supply your troops by requisition.

"The corps headquarters and the headquarters of the 16th Division will be established to-morrow afternoon in Calhoun; day after to-morrow in Adairsville."

Subject-matter of the Solution.—1. Estimation of the ground about Villanow, with reference to passing the night there and a possible attack by the enemy.

2. How will you pass the night? Motive for the subdivision of the troops.

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3. What orders will you give? What reports do you make?
4. Tracing of the position for the night.

NOTE.—The latest reports before dark are to the effect that Rome and Kingston are occupied by the enemy. No report as to his strength can be obtained.

Your cavalry patrols found, near Pocket or John's Creek Mills, no signs of the enemy.

45. FOR CAPTAINS OF ARTILLERY, CAVALRY, AND INFANTRY.

Map III. Richmond.

Situation.—An offensive movement, for the purpose of occupying Mechanicsville Bridge, is to be made by a rear-guard, on the road Mechanicsville-Bethesda Church, now concentrated between H. Turner's and the woods to the north, consisting of two battalions of the 5th Maryland, half-battalion of the 10th Pennsylvania, and half-battery C of the 2d Rhode Island Artillery. Half-battalion of the 10th Pennsylvania is still on the line Shady Grove Church and Walnut Grove Church as outposts. The attacked cavalry—one squadron—is under cover to the east of Walnut Grove Church.

A detachment of the enemy has been pushed forward to Mechanicsville. The main body is in Richmond.

Problem.—Exercise in issuing verbal orders.

The orders required are those necessary for the movement.

46. FOR CAPTAINS OF INFANTRY, CAVALRY, AND ARTILLERY.

Map XIX. North Anna.

Situation.—The advance-guard of an infantry division (three battalions, one squadron, and a 3·5 in. field battery) has reached and occupied the position at A. R. Riggs's, in order to cover the debouch of the main body from the defile near Chandler's.

Problem.—Exercise in issuing verbal orders in the field.

Subject-matter of the Solution.—1. Discussion of the position on the supposition that the attack comes from the direction of Jericho's Mill and Buarle's Mill. Orders for the defense of the position.

2. The attack succeeds; the defender retires to the Race-Course and Hanover Junction. The enemy selects a position to the south of Chandler's, to prevent a second advance of the defeated party.

What position is selected? Orders issued therefor by the enemy.

3. Two squadrons of cavalry are sent under your command from Chandler's over Hanover Junction—which has been deserted by the defender—into the valley of the Little River to New Market, in order to prevent the execu-

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tion of a requisition contemplated by the enemy, and to attack the force there for that object.

What orders will you give at Chandler's ?

NOTE.—All the officers are mounted. The solutions to Nos. 45, 46, and 56, are given verbally. One officer acts as commandant, each of the others assumes the part of a subordinate commander (chief of battalion, commandant of the cavalry, commandant of the artillery, etc.).

After the situation has been dictated, ten minutes are allowed; the *commandant* then discusses the position in a clear voice, and gives the necessary orders. The others give their orders in the same way. The officers assume different *rôles* in each problem

47. FOR CAPTAINS OF INFANTRY, CAVALRY, AND ARTILLERY.

Map III. Richmond.

Situation.—An army corps is moving from White House on the Pamunkey by both roads over Bottom's Bridge and Cold Harbor toward Richmond. The heads of column have arrived at Providence Church and Hopewell Church respectively, and the troops bivouac on these lines of march.

The advance-guards, each consisting of three battalions, two squadrons, and one battery, are to furnish the outposts.

The enemy has reached the line Mechanicsville-Laurel Church.

Problem.—You are commandant of the outposts, and ordered to establish them on the line Cold Harbor to Bottom's Bridge, below which the Chickahominy is not fordable.

Subject-matter of the Solution. A.—1. Where will the advance-guards take post as reserves of the outposts ? How many grand guards will each furnish ? Where will they be posted ? What sections are assigned to them ? Strength of each ?

2. Instructions for each grand guard. The regulating of patrols.

3. Description of all that passes from the time grand guard No. 1 of the right column is marched to its post, until the sentinels are posted.

4. Report of occupation.

5. Tracing of the outposts in detail.

Subject-matter of the Solution. B.—6. What orders does grand guard No. 1 receive with reference to its being attacked ? What orders do the sentinels receive for such a case ? Dispatches sent to the commander of the outposts.

7. Tracing of the troops of grand guard No. 1 of the right column when alarmed by a hostile squadron of cavalry.

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48. For Captains of Infantry, Cavalry, and Artillery.

Map III. Richmond.

Situation.—The troops are retreating from the northeast toward Richmond. The 2d Division from New Bridge over the New Bridge road to the heights on the eastern side of the city, west of the railroad; the 1st Division from Mechanicsville over the Mechanicsville turnpike to the northeast of the city. These positions are to remain occupied to-day and to-morrow, and secured by outposts.

Problem.—At the intersection of the two roads the division commander detaches the 2d Regiment, of which you are commandant, assigns thereto one squadron of dragoons and a half-battery of heavy (3·5 in.) field artillery, and gives you at 1 P. M. the following orders:

"The division will encamp on the heights to the west of the railroad, remaining there to-day and to-morrow. You are commandant of the outposts. The line to be secured by grand guards extends from P. Waring's to Hill 6. You will occupy the hill in rear of the intersection of the roads with the outpost reserve. To the north, on your left flank, you will establish communication with the outposts of the 1st Division, to which is assigned the Virginia Central R. R. as the line of grand guards.

"To the south, on your right flank, there are no troops of ours. The advance-guards of the enemy are expected to-day along the line New Bridge Church and Mechanicsville Bridge. In case of attack the positions of the outposts are to be held; the greatest importance is attached to them.

"The rear-guard of the 1st Regiment, with its attached cavalry and artillery, which was greatly fatigued by the duties of last night, will retire to the camp of the division after the outposts are established.

"The order for a temporary halt on the line where the grand guards are to be established, as well as the order to retire to the camp of the division, the commandant of the rear-guard will receive from me at once.

"The headquarters of the division is established at the station of the Richmond-Petersburg R. R.; the columns of supplies are also there."

Subject-matter of the Solution.—1. What will you do on receiving this order?

2. Estimation of the relations of the ground from the standpoint of the problem to be solved.

3. Describe your course of action, as determined by the principles of minor tactics, up to the time you receive the reports of occupation of their positions by the grand guards. All orders to be worded as in actual war.

4. Make a tracing of the arrangements of the outposts.

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49. For Captains of Infantry.

Map XII. Vienna.*

Situation.—Our own army takes the offensive from the right bank of the Danube into the Marschfeld against the enemy who is occupying the position of Wolkersdorf along the Russbach over Deutsch-Wagram as far as the Markgraf-Neussiedl. The bridge-heads of Floridsdorf and Stadlau are in our possession. At Ober-Hollabrunn an infantry division of the enemy is standing, threatening Stockerau and Korneuburg.

Problem.—To secure the defiles of Lang-Enzersdorf and Klein-Enzersdorf the 1st Infantry Division is detailed, which, on the 10th of January, at 7 A. M., stands concentrated at the railroad station of Jedlersee. You are commandant of the 2d Infantry Regiment and receive at this hour the following order from the division commander:

"The general situation and the duty to be performed by the division are known to you. You are charged with the defense of the defile of Lang-Enzersdorf. Select a position in front of the defile suitable for a successful defense, about in the line of the Donau-graben.

"Your right wing must protect the road Korneuburg–Lang-Enzersdorf, and the left wing must reach the Danube. I attach to your command a heavy field battery and a non-commissioned officer with twelve horsemen.

"The 1st Infantry Brigade and one battery will conduct the defense of the village of Bisamberg and Klein-Enzersdorf, and has orders to establish communication with you.

"I am standing with the 1st Infantry Regiment and two battalions of rifles, as reserve, on the Bisamberg in the Magdalenenhof. Send all reports here.

"After exerting all possible efforts in the defense of the position, the retreat, if necessary, will take place between the Danube and the town Lang-Enzersdorf through the meadows to Jedlersee.

"Your troops will be supplied by forced requisition in the bridge-head of Floridsdorf.

"The entire divisional cavalry is on the march against the enemy, and Stockerau is repeatedly visited by patrols therefrom. Move on."

Subject-matter of the Solution.—1. How far do you propose to take your detachment? Assuming that the main body has arrived at this point, how strong are the troops for securing the column against surprise, and where do they stand?

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* Dictated and solved in the "Landwehr-Stabsofficiers-Curs," Vienna. J. Beck, Lieutenant-Colonel and Commandant.

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(This is to be solved at the railroad-station in Lang-Enzersdorf.)

2. After reconnaissance of the ground in front of the defile of Lang-Enzersdorf:

What position is selected? Reasons for the selection. Subdivision of the troops.

(This is to be solved in Lang-Enzersdorf after the reconnaissance.)

Solution.—1. I propose to take my detachment to Lang-Enzersdorf, with the head of column on a line with the church.

(At 8 o'clock): By the time I arrive there with the main body, the troops for the security of the column will have reached the western entrance of Lang-Enzersdorf, and will continue their march, according to the orders received, toward the Donau-graben, where they are to halt. They include:

Advance-guard, half of the 1st Battalion. One and a half companies on the main road to Korneuburg at the forks of the road and the Donau-graben.

One section as far as the redoubt and the railroad east of the Donau-graben.

One section on the road which crosses the Donau-graben between the railroad and the Korneuburg road.

To each of the first two of the above subdivisions four orderlies are assigned. These are to be sent over Tuttenhof toward Korneuburg, and on the road to Bisamberg as far as Bisamberg, the former to obtain information, the latter to establish communication.

2. The reconnaissance led me to the following conclusions:

The ground to be crossed by the enemy from Korneuburg to the Donau-graben at Lang-Enzersdorf is, with the exception of a narrow strip between the railroad and the Danube, which is covered with wet meadows (*Auen*), open, and can be raked in every direction by means of musketry and artillery fires.

The defender, opposing an advance from Korneuburg, finds a line behind the Donau-graben, furnishing cover and outlook, resting on one side on the Bisamberg on the other side on the Danube, which two objects furnish at the same time the supports and end points of a defensive position along the Donau-graben.

The lines of attack of the enemy converge on this line.

The left wing finds, besides the support on the Danube, which excludes any turning movement to surround the wing, another support in the rudiments of a former fortification (lunette with counterscarp wall and wet ditch —room for about four guns); moreover, in front of this wing is the Tuttenhof, suitable for a strong defense, rendering an advance on our left wing very difficult.

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The Bisamberg, and the village of Bisamberg at its foot, which is occupied by the neighboring brigade, secure the right wing against any turning movement.

Among the *possible* directions of the enemy's attack that along the Danube Au and over Tuttendürfel is by far the *most probable*. There the enemy is at least partly covered from sight, hence also from the effects of the artillery-fire, which is not possible in any other direction.

The Au and the Tuttendürfel allow the enemy to advance to within 600 to 800 paces, unharmed by the infantry of the defense, and to prepare and execute his final attack.

The forcing back of our left wing would also lead the enemy along the shortest line to the debouch at Lang-Enzersdorf and to the Mühlschütt-Au.

From these considerations I decided to take up the position for defense on the Donau-graben—the wings resting on the Bisamberg and the Danube, the center marked by the Donau-graben.

In order not to lose the effect of the long range of the artillery, and for want of a proper artillery position on the level, I order :

Half-battery near station 360 on the Bisamberg to rake the foreground from Korneuburg to Tuttendürfel. Half-battery in the redoubt on the railroad to rake the foreground between road and railroad.

One half the 2d Battalion occupies the Tuttenhof, under the command of Captain A, and will prepare it for defense.

The 1st Battalion (including the advance-guard) and half of the 2d Battalion, under Lieutenant-Colonel B, will occupy the line along the Donau-graben with half-company in the redoubt. The 3d battalion remains as reserve at the western entrance of Lang-Enzersdorf. The factory at the western entrance will be occupied by half-company, and prepared, as well as possible, for defense, in order to furnish a point of support for the rear-guard in case of retreat.

The necessary orders were sent by adjutants.

All the subdivisions encamp near their own districts.

NOTE.—The selection of Station 360, on the Bisamberg, for the half-battery, the instructor does not approve of. Although doubtless a good fire at long range can be thus obtained, its effect, nevertheless, continually diminishes as the enemy approaches the defensive position.

50. FOR CAPTAINS OF INFANTRY, CAVALRY, AND ARTILLERY.

Map XII. Vienna.

Situation.—The army is advancing along the right bank of the Danube from the west toward Vienna. The 1st Infantry Division, on the extreme left flank, is standing, after a forced march, on the 30th of January, 1884,

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at 4 P. M., with its division staff, the 1st Infantry Brigade, two squadrons of the divisional cavalry, the divisional artillery, the company of engineers, and the heavy train in Königstetten, and has pushed out its outposts to the line :

In der Groissau—Heuberg—Ober-Kirchbach. The 2d Infantry Brigade, consisting of the 3d and 4th Infantry Regiments, and the 1st Battalion of Rifles attached, has arrived in Kierling, and sent the battalion of rifles to Klosterneuburg, its outposts at Haschhof, and on the crest of the Buchberg. A squadron of cavalry, attached to the brigade, marched on the road St. Andrä-Hüflein, and has also reached Klosterneuburg.

The enemy's forces are advancing from the east, on the right bank of the Danube, against Vienna, and reliable information has confirmed the report that, on the 30th, at noon, the line of the Schwechat was crossed by the enemy's cavalry.

Problem.—The 1st Infantry Division is to occupy the heights of the Wiener Wald, sloping toward Vienna, on the 31st.

You are commandant of the 4th Infantry (two battalions), and receive the following order from the brigadier-general on the evening of the 30th :

"Move out with your regiment to-morrow, the 31st instant, from Kierling, so that it will reach the south side of Klosterneuburg, and stand in rear of the 1st Battalion of Rifles, stationed on the Weidling Bach from Weidling to the railroad station of Klosterneuburg, at 8.30 A. M. This battalion is assigned to your command, and also the squadron of dragoons, which will be in the square in Klosterneuburg at that hour. With this detachment you will, without delay, occupy Josefsdorf, on the Kahlenberg and the Leopoldsberg, and, at the same time, close the road defile from Klosterneuburg to Nussdorf at about the height of Kahlenbergdorf. From this position the villages of Nussdorf and Heiligenstadt are to be observed. The train you will leave, for the present, at the railroad station of Klosterneuburg.

"The 3d Infantry Regiment, with which the brigade staff remains, will march to-morrow morning from Kierling over the Haschhof, and reach Weidling in time to ascend with you, on your right flank, the Kahlenberg and Hermannskogel. Its advance troops will be sent as far as Krapfenwaldel and Am Himmel, and establish from this village communication with the main body of the division on the heights north of Dornbach. From probably 12 M. on, I shall be at Am Himmel. To that point send all reports. The countersign for the 31st you will receive here sealed. Not until you have reached your position will rations be cooked."

Subject-matter of the Solution.—1. At what hour of the morning of the 31st is the regiment in Kierling (near the church) ? What road was made

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use of in the march to Klosterneuburg? When did the regiment reach the Weidling Bach?

Solution.—1. The regiment must be at the church in Kierling at 7.10 on the 31st of January, 1884.

The road Kierling-Klosterneuburg was used for the march.

The regiment arrived on the Weidling Bach at 8.25 A. M.

Subject-matter of the Solution.—2. It is assumed that you arrived in your position behind the 1st Battalion of Rifles, on the morning of the 31st, at the hour designated. The commandant of the battalion and the commandant of the squadron of dragoons have reported to you. It is 8.30 A. M.

From a careful consideration of all the relations entering into the duty before you, what orders will you give for the advance upon and seizure of the heights, etc.?

At what hour will the column set out?

NOTE.—Before the orders are issued, the following telegram is transmitted to you by the railroad station-master at Klosterneuburg:

"Hostile cavalry-patrols entered Nussdorf at 7.30 A. M. to-day; also Heiligenstadt.

"STATION-MASTER IN NUSSDORF."

Solution.—2. The ground is very difficult for the advance. The march must be made through wooded, mountainous country. The ground, in itself rendered difficult by the relations of the slopes and by the woods, is even more impracticable to-day on account of the deep snow. The available roads in the hills are of the poorest kind.

On this account the ascent of the heights will require considerable time; the tactical precision and order of the troops will suffer, and the preservation of communication between the separate columns will be especially difficult. In a higher degree is this the case between the column on the bank of the Danube and that on the Leopoldsberg. The outlook is limited and the slope very steep, in many places rendered entirely impracticable by extensive stone-quarries. Only scattered individuals can make any progress here.

In consequence of these facts the separate columns must be made stronger than usual or more nearly self-supporting. The two left columns have, however, only a small space for deployment, and, as they possess a certain advantage in the ground, they must be made weaker than the right column. The line along the Danube, very important on account of the road, can easily be entirely shut off. The Danube secures the left flank, on the right is the position on the Leopoldsberg. The space for deployment is limited to road and railroad. The top of the Leopoldsberg is also of small extent, the buildings there form an inclosed work, the declivity in front can not be scaled in

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an attack. Of the utmost importance is the situation of Josefsdorf. It forms a section of ground, facing south very favorable for defense, furnishes a distant outlook, admits a freedom of movement, and rests on the position of the other troops.

For this reason the column directed on this point must be the strongest, and the commander-in-chief must go with this column.

The depression between Kahlenberg and Leopoldsberg is well suited as a position for the reserve, because the roads to Josefsdorf and the Leopoldsberg unite here, and by the wire-rope railway a better communication with the Danube is possible; moreover, the wood constitutes a section favorable for defense.

I call up to me the commandant of the battalion, the commandant of the troop, and the mounted captain of the 1st Battalion of the regiment, and give the following orders:

"The situation is known to you. According to a telegraphic dispatch just received, hostile cavalry entered Nussdorf and Heiligenstadt at 7.30. Our task consists in occupying Josefsdorf, the Leopoldsberg, and the Danube road, observing the villages Nussdorf and Heiligenstadt, and closing up the road along the Danube at about the height of Kahlenbergerdorf.

"Major R, you will command the left column, consisting of two companies of the 1st Battalion and the squadron of cavalry. The cavalry will move on ahead at once at a trot, and occupy with half-squadron the road defile north of Kahlenbergerdorf and barricade it. Half-squadron will advance farther over Nussdorf and Heiligenstadt, and endeavor to obtain information of the enemy and establish communication with the cavalry of the main body at Grinzing and Dornbach. The defile is then to be occupied by the infantry, and the position strengthened as much as possible. From the squadron are detailed two cavalrymen as orderlies for the center column, and five as orderlies for the right column.

"Captain K, you will move with two companies of the 1st Battalion on the road up the Leopoldsberg, take up a suitable position, strengthen it, and send patrols toward Kahlenbergerdorf, Nussdorf, and Heiligenstadt. You will supply your men at once with two packages of cartridges each from the ammunition-wagon. Two cavalrymen will be assigned to you. To avoid confusion in the march, you will set out after the 2d Battalion.

"I will march with the 2d Battalion to Josefsdorf. This column will designate half-company as advance-guard. One section as right flanking-column; direction: first, the letter f in the word 'Stifts W.' farther up the station of the cog-wheel railway. Must look up the communication with the 3d Regiment. Left flanking-column half-section.

"The battalion of rifles, after the departure of the troops for securing

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the column against surprise, will draw in the outposts, and follow toward Josefsdorf. It will post itself as reserve in the depression between the Kahlenberg and the Leopoldsberg, at Station 396.

"I recommend an energetic defense. The train remains at the railroad station in Klosterneuburg. Move on."

The telegram of the station-master in Nussdorf will be sent to the general in Weidling, together with the report that the march from Klosterneuburg began at 9 o'clock.

Subject-matter of the Solution.—3. It is assumed that your subdivisions have reached the points designated. How will you carry out the second part of your task, securing the position ?

Solution.—3. The ground to be occupied offers many advantages to the defender. The right flank of the position is the village Josefsdorf. Toward the south and east from the village the slope is steep (45°–60°) and thickly wooded.

From the edge of this wood the slope falls away gently and forms a foreground 400–1,000 paces wide and entirely open, where the defender may obtain an outlook, good fire, and command of the ground. The defensive line must therefore be posted at the edge of the wood. On the village border, which is formed on the south and east of a wall over two metres high, two tiers of musketry-fire may be obtained.

The reserves will find very favorable positions behind this wall, and can readily be moved to any point of the position. Toward the west the edge of the wood, which covers the Kahlenberg, adjoins the border. This extensive wood would have a detrimental effect on the position, were it not occupied farther on by the 3d Regiment. The ground in front of the woods is entirely open.

East of Josefsdorf the edge of the wood turns to the north, and has here also a gently falling slope in front, which can be well raked. In this manner the village of Josefsdorf and the bordering wood form a kind of bastion projecting from the general line of defense of very considerable strength. The complete command of the field of view and the facilities for fire of this part of the position are impaired only by the entrance of the Schreiber Bach. The latter is not in open view from the position. If the defensive line be advanced to the crest of the ridge forming the northern valley-border of the Schreiber Bach (Nussberg), the position will again be unfavorable because this slope, on account of its steepness and its varying forms of surface, can not be conveniently brought under fire. This ridge, on the other hand, is very suitable for the troops advanced to secure the line against surprise, since the latter may obtain a distant outlook, and will have a difficult obstacle in their front.

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The inn (W. H.) "Zur Wildgrube" also offers many advantages. It facilitates combination with the 3d Regiment, renders by its fire the crossing of the upper and more practicable portion of the Schreiber Valley more difficult, and permits of a flank fire on a part of the principal position. As it lies within full range of the latter, it may be used with great advantage as an advanced post.

The Leopoldsberg forms the center of the position. Toward the enemy the slope is very steep and is covered with bushes and stunted trees. On the top is a little space, nearly covered by the old castle with its circular wall, the church and the keeper's lodge. The defense of this village, even by a small force, is an easy matter, the ascent against it under fire scarcely possible. The front line of fire must be placed farther down the slope, however, on account of the better outlook and field of fire to be obtained there.

From Kahlenbergerdorf a ravine runs up between Leopoldsberg and Kahlenberg, which in the upper part is thickly wooded. This ravine must be occupied, in order to preserve communication between the two parts, and because it leads to the line of retreat.

The road-defile at Kahlenbergerdorf constitutes the left flank of the position. The troops are best posted up against the steep slope of the Leopoldsberg. The space for deployment is limited to road, railroad, and foot-path, and can therefore be easily held by a weak force. If Kahlenbergerdorf were included in the defensive line, the steep Nussberg sloping toward it would be very unfavorably situated, because the entire locality is visible from the hill; moreover, a larger force would be required for the occupation.

The left wing is completely protected by the Danube. The right wing rests on the almost impracticable slope of the Leopoldsberg, with the troops occupying which it is closely connected. The foreground is very unfavorable for reconnaissance, on account of the succession of suburbs of Vienna, beginning with Nussdorf; and yet a distant outlook over the enemy's lines of advance may be obtained from Nussdorf.

The line of retreat of the left wing will be by the road up the Danube through the defile; those from the Leopoldsberg and from Josefsdorf will be concentrically toward Klosterneuburg.

The forest of tall beech-trees is quite practicable; nevertheless, the subdivisions will be considerably separated, and may even lose their direction. The only available cutting in the wood is that made by the wire-rope railway, which, in the depression, is bordered by a wider opening. The station of this railway, and the still larger building in the opening, become on this account very important points of support. Here in this depression is the most suitable place for the reserve.

It lies in rear of the center of the line, at the junction of the roads to

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Josefsdorf, up the Leopoldsberg, along the ravine to Kahlenbergerdorf, and to Klosterneuburg. And with equal facility troops may be sent along the wire-rope railway to the Danube. The distance to Leopoldsberg and to Josefsdorf is 1,200 paces.

Necessary fortifications:

The premises of the Wildgrube placed in a state of defense.

Josefsdorf; southwest entrance barricaded, steps behind the wall, cross-communications and outlets to the rear prepared. On the southern and eastern edges of the wood shelter-trenches dug. The inn (W. H.) "Zur eisernen Hand," in the angle projecting to the southeast, placed in a state of defense. The obstacles in the foreground cut down. The church prepared as a redoubt.

At the ravine to right and left shelter trenches.

Leopoldsberg; midway on the southern slope shelter-trenches, wherever the rocky soil permits. Buildings placed in a state of defense. Entrance barricaded.

On the Danube; road, railroad, pathway barricaded. Only a narrow passage on the road is left, ready to be closed at any moment by wagons standing near by. Shelter-trenches connecting with the lower slope of the Leopoldsberg.

To the rear—Cementfabrik on the Danube, the railroad station and the restaurant in the depression placed in a state of defense, in the opening of the wood shelter-trenches dug; also, lines of communication laid out between the positions, and to the rear in the most suitable directions.

From the above considerations I order as follows:

"The 2d Battalion will send a patrol at once over Wildgrube to the Krapfenwalde, and another along the edge of the wood toward the west, to look up the communication with the 3d Regiment.

"The subdivisions of the detachment will prepare the respective positions, occupied by them at present, for a vigorous defense.

"The 2d Battalion will occupy the inn (W. H.) 'Zur Wildgrube,' as an advanced post, with one section.

"To secure the troops in the position, the 2d Battalion will push out half-company on the Nussberg, which will establish communication to the right with the outposts of the 3d Regiment, and extend to the left to about 500 paces west of the Eichelhof. Infantry patrols will be sent forward as far as Heiligenstadt.

"The garrison of the Leopoldsberg will send one section in the Eichelhof, which will post sentinels in its front—to the right up to the half-company, to the left to about 300 paces from the Eichelhof.

"The detachment on the Danube will send one section of infantry and a patrol of dragoons to the northern end of Nussdorf, to guard the road-defile

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there and seek contact with the troops to the right. The cavalry will push out patrols as far as Döbling, Dornbach, and Grinzing in order to preserve communication with the cavalry of the main body.

"The battalion of rifles will carry on the work necessary for strengthening the position in the depression. All the work of fortification will commence at once, and for this purpose the civilians in the country will be pressed into service.

"The non-combatants will be quartered in the houses. Rations will be cooked at once.

"The outposts will be relieved at daybreak.

"All reports will be sent to the church in Josefsdorf."

I then send the accompanying report to the headquarters of the brigade in Am Himmel, and turn over the command temporarily to Major H, of the 2d Battalion, in order to inspect the position, to connect the various fortifications, and to talk over the necessary measures to be taken by the subordinate commanders on the ground.

The above-mentioned report will read:

(This is supposed to be filled in on a printed form.)

Sent by:.....Colonel A.
To:.....Major-General B, in Am Himmel.
Sent from:.....Josefsdorf.
Date:.....January 31, 1884.
Hour:.....11 A. M.

I am standing with the 2d Battalion in Josefsdorf, two companies of the 1st Battalion on the Leopoldsberg, two companies of the 1st Battalion, and the troop of dragoons on the road north of Kahlenbergerdorf, with the 1st Battalion of Rifles in the depression between Kahlenberg and Leopoldsberg. The work of strengthening the position is going on. Troops for security pushed up on the Nussburg. The communication with the 3d Regiment established at the Krapfenwalde.

Hostile cavalry-patrols retired before our own patrols from Nussdorf and Heiligenstadt.

Sent at (hour): 11 A. M.
By: Corporal Frank Prim.
Gait: Walk and trot.

51. For Captains of all Arms.

Maps VI and VII. Region between Gettysburg and Appomattox C. H., Fredericksburg and Spottsylvania C. H.

Situation.—The 3d Division of Infantry is encamped, during the night of the 3d of May, at Spottsylvania C. H.

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On the 4th it is to advance over Falmouth toward Hartwood, while the main body of the corps, encamped at Stannard's Mill, marches directly north over Fredericksburg toward Hartwood.

The enemy's troops from the north took Warrenton Junction on the 3d and occupied Bealton.

Problem.—At 2 A. M. on the 4th Colonel E receives the following order from the commander of the 3d Division:

"The latest information is to the effect that yesterday at 5 P. M. hostile cavalry appeared at Hartwood, and that infantry subdivisions were moving from Bealton in that direction.

"It is possible that more considerable bodies of the enemy's troops were drawn to Hartwood and will move against us very early to-day.

"We will attack the enemy wherever we meet him, but it is very important for us to obtain possession of the crossings of the Rappahannock.

"Before 4 o'clock the division can not move, but you will proceed with your regiment, the 5th Battalion of Rifles, the 8 cm. Battery F 1st Artillery, and two squadrons of the 5th Cavalry, at 3 A. M., over Falmouth and secure the bridge there. As soon as my division is set in march, I will hasten ahead to Falmouth.

"The train of your troops will remain with the division train."

Subject-matter of the Solution.—Dispositions of Colonel E to secure the crossings of the Rappahannock:

1. Estimation of the relations of the ground at Falmouth.
2. What considerations determine the dispositions made.
3. What orders does Colonel E issue?
4. Tracing of the position at 5.30 A.M. (assuming that the main column under Colonel E reached Falmouth at 5 A. M.).

52. For Captains of Infantry, Cavalry, and Artillery.

Map VIII. Atlanta Campaign III.

Situation.—You are commandant of a separate detachment placed under the direct orders of the commander of the First Corps.

The detachment consists of the 2d Infantry, the 11th and 21st Battalions of Missouri Rifles, one half the 3d Cavalry, the heavy field-battery (9 cm.) K, 4th Artillery, and a field-hospital section; all with their entire trains.

This detachment has been encamped since yesterday afternoon at 3 P. M. as follows:

"You, with your staff and the staff of the 2d Infantry, the 1st Battalion of the 2d Infantry, and the field-hospital section, at New Hope Church;

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the 2d Battalion of the 2d Infantry at Howard's ; the 3d in Cartersville ; the 11th Battalion of Rifles at Cass Station ; the 21st near Bishop's Mill ; the cavalry and the battery at Pickett's Old Bridge.

"Our outposts, furnished by other troops, cover this encampment and those of the corps, occupying the line Cassville-Price's—the Lime-Kilns–Kingston and Wooley's Bridge.

"Your detachment was to have had a day of rest to-day, the 29th of May, 1864."

Nevertheless, at 10 o'clock A. M. the following order was received from the commander of the First Corps (headquarters near the cross-roads at Milam's Bridge) :

Problem.—"You will be in position with your detachment at 6 P. M., on the south of the road, from the railroad near Best's Mill to Johnson's Mill—front toward Two Run River.

"The troops will take the light field train.

"The rest of the train must be posted, by the same hour, west of Trotten's, between this point and the creek at Goddard's, front to the north."

Subject-matter of the Solution.—Description of your action on receiving this order.

NOTE.—*You have an officer of the general staff on your staff.*

53. FOR CAPTAINS OF INFANTRY, CAVALRY, AND ARTILLERY.

Map XII. Vienna.

Situation.—The 1st Infantry Division, to which you belong, crossed the Danube on the 8th of March, 1880, in the evening, coming from the north, by the Franz Josef and Reich's Bridges, and passed the night in and near the K. K. Augarten, in a secured position.

The enemy from the west, advancing along the right bank of the Danube, has reached Ried and Königstetten, and pushed forward his advance troops into the Wienerwald.

On the 9th of March, 1880, at 7 A. M., the main body of the 1st Infantry Division will set out from the K. K. Augarten over the Augarten Bridge, over the Schmelz and Breitensee toward the heights lying to the west of this village, in order to prevent the debouch of the main force of the enemy, which is advancing through the valley of the Wien, through the defile at Hütteldorf.

Problem.—You are the commandant of the 1st Regiment of Infantry, to which is attached for the day one squadron of the 3d Dragoon Regiment and half heavy field battery (9 cm.), and in obedience to orders received

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from the division commander your command is standing at 6 A. M. at the Brigitta Bridge, where you receive at that hour the following order from the division commander:

"According to reliable reports, a flanking column of the enemy's, about 1,200 strong and composed of all arms, is marching to-day from Königstetten over Scheiblingstein-Dornbach toward Vienna.

"Move out with your detachment through Währing over the heights lying between Dornbach and Pötzleindorf to the northwest entrance of Neuwaldegg. Take up a position there and oppose the enemy's advance.

"Before 12 M. you can not rely on receiving support.

"Dispatches you will send to me at Breitensee.

"The light field train will join you.

"Retreat, when necessary, will take place on the line of advance."

Subject-matter of the Solution.—Battle for heights.

1. Action of the detachment commander on receiving this order.

Solution.—1. The ground to be first passed over in the execution of the order consists, for 4,000 paces, of the mass of houses of Vienna, the suburbs Währing, and part of Weinhaus.

The many intersecting streets and the single exit through the Währing line give it the character of a very difficult piece of ground, which we must endeavor to cross as rapidly as possible.

West of the mass of houses the gently sloping ground, rising toward the Schafberg and the Michaelerberg, is open and practicable for all arms; at this time of year also, the vineyards.

As objective points we notice: station 340 north of Dornbach, the wooded heights northeast of Neuwaldegg and the Michaelerberg, also the northern slope of the Henberg.

The road Weinhaus, Gersthof, Pötzleinsdorf, is the most suitable line of advance.

In order to facilitate the safe passage of the foot-troops and the guns past the many turns of the streets and the debouch from the Währing line, and to prevent any delay thereby, the cavalry will hurry on ahead to reconnoitre and occupy the open ground in front of these defiles.

In accordance herewith the commandants are assembled, and, after a brief description of the situation, receive the following verbal orders:

To the commandant of the squadron:

"The 1st Squadron of the 3d Regiment of Dragoons will pass through the Währing line to Währing and reconnoitre the ground from that point, between the roads Währing, Weinhaus, Salmannsdorf and Währing, Dornbach, Krenzbühel.

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"The main body of the squadron will endeavor to reach the northwest entrance of Neuwaldegg and the depression south of the Michaelerberg as rapidly as possible.

"From Dornbach communication with the main body of the division will be established; Salmannsdorf and the ground to the west will be included in the sector of reconnaissance.

"The advance-guard of the detachment, half-battalion, will soon follow.

"The 1st Squadron will set out at once."

To the commandant of the 1st Battalion:

"A half-battalion of the 1st Battalion is designated as advance-guard.

"This half-battalion will take the same road as the cavalry, and, after passing the Währing line, will keep to the left or south so as to reach the road leading from Währing to station 340. This road is the principal line of march of this half-battalion.

"After reaching station 340, this half-battalion will move up to the northwestern entrance of Neuwaldegg, and occupy this entrance and the slope of the wooded heights to the north.

"A company of the 1st Battalion is designated as left flanking column. It will march with the half-battalion of the advance-guard till beyond the Währing line, then turn to the south, gain the Dornbach road, and, after passing this village, occupy the northern slope of the Henberg opposite Krenzbühel.

"Half-company of the 1st Battalion will march as right flanking column over Weinhaus, Gersthof, Pötzleinsdorf, Neustift am Walde, into the northern corner of the wood on the Michaelerberg.

"Advance-guard and flanking column will set out at once."

To the commandant of the 2d Battalion, acting commandant of the main body:

"Ten minutes after the departure of the troops for securing the column against surprise, the other two battalions and the half-battery will set out, using the road Währing—Weinhaus—Pötzleinsdorf; at Pötzleinsdorf they will turn into the road to Neuwaldegg.

"The half-battery will march between the two battalions, which will march in double files.

"The remaining half-company of the 1st Battalion is designated as a support for the guns.

"The light field train follows in rear of the 3d Battalion, which will designate a section as rear-guard."

I now ride forward with my staff, the commandant of the battery, and several cavalry orderlies, to reconnoitre the ground, and will then decide to what points the subdivisions of the main body are to march.

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Subject-matter of the Solution.—2. It is assumed that you are riding with your staff between advance-guard and main body on the road leading from Währing to station 340. As you are leaving this village, reports come in from the cavalry to the effect that—

"The advance over Pötzleinsdorf and Dornbach is opposed by hostile musketry-fire, and the heights at station 340 are strongly occupied by infantry. Your cavalry has retired to Gersthof and the heights of Dornbach; a portion is moving in behind the advance-guard.

"The latter, coming as far as *n* of the word 'Weinhaus,' is a target for two guns of the enemy, posted near station 340. Your advance-guard, too, is in combat with the enemy's infantry patrol, and has deployed in open order. They see the ground near and in front of station 340 occupied by the enemy with infantry and two guns."

What decision do you arrive at? How will you carry it out?

Describe definitely how your force is subdivided at the time your line of skirmishers is 300 paces from the enemy.

Solution.—2. I decide to attack. To carry out this decision, I give the following orders:

To the commandant of the advance-guard, who took his half-battalion under the nearest cover at the first shot of the enemy's artillery:

"I will attack the enemy on his left wing. You will hold him in front. The company of the left flanking column will attach itself to you as left wing in the vineyards.

"The artillery will move up here; take care not to come in its line of fire."

To the commandant of the left flanking column, through the adjutant of the 1st Battalion, verbally:

"The enemy's position at station 340 will be attacked on his left wing. The half-battalion of the advance-guard will hold the enemy in front.

"The 3d Company will attach itself as left wing to this half-battalion, in the vineyard northeast of the road Hernals-Dornbach."

To the commandant of the half-battery, who rode with me:

"Bring up your half-battery, take it to the point where we are now standing, engage the enemy's guns and prepare the way by energetic artillery-fire for the attack of our infantry, which will be directed with all its power against the left wing of the enemy."

On receiving the first report, that the ground in front was occupied by the enemy, a cavalry orderly was sent to the main body of the column of march with the verbal order:

"The main body will halt at the southeastern entrance of Gersthof. Further orders I will personally deliver at that point. Right flanking column will endeavor to move through Gersthof on Pötzleinsdorf."

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I myself, after having given, while with the advance-guard, the necessary orders referred to above, ride as rapidly as possible to the main body and order there:

"The enemy has occupied the heights in our front near station 340 as far as Pötzleinsdorf. I will attack him at once. The 1st Battalion will hold him in front, while the attack on the enemy's left wing will be conducted by the 2d and 3d Battalions.

"The 2d Battalion will deploy in line of battle on both sides of the road leading from the southern part of Gersthof toward Neuwaldegg. The object of the attack will be the wood in front, all four companies in the first line. The leading half-battalion of the 3d Battalion will advance through Gersthof and take as its point of attack the projecting point of the wood from the northeast. The rear half-battalion of the 3d Battalion will remain as reserve 400 paces in rear of the 2d Battalion.

"The half-company of the right flanking column will move through Pötzleinsdorf in the direction of the road to Neuwaldegg, and then cover the right flank of the line of battle.

"As soon as the enemy's position is taken we must endeavor to roll up the enemy's line toward station 340, by advancing our right wing in such a manner that the extreme right flank on the road Pötzleinsdorf-Neuwaldegg shall reach the northwestern entrance of the latter village before the enemy, or at least at the same time as the enemy.

"The field hospital will be established in Gersthof.

"The train remains in Weinhaus."

To the commandant of the squadron:

"Assemble your squadron and post yourself on the right, alongside of the half-battery, in a hollow. Send one section to our extreme right flank; it will ride around Pötzleinsdorf to the east, and reconnoitre toward Neustift am Walde; if the latter village is not occupied by the enemy, it will pass through it and endeavor to reach the open ground northwest of the Michaelerberg, and, if our attack succeeds, observe the retreat of the enemy, and report the result of its observation at once.

"In the event of failure, retreat to this point; if this is impossible, then over Sievering and Ober-Döbling."

When my line of skirmishers is 300 paces from the enemy, the subdivisions are posted as follows:

The 3d Company of the 1st Battalion on both sides of the road from Währing to station 340, at *a* of the word Dornbach, entirely in the skirmish-line, half-company of the 1st Battalion as support for the guns of the half-battery.

Four companies of the 2d Battalion on both sides of the road at *s* of the

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word Gersthof. Two companies in line of skirmishers at close intervals, two companies in column immediately behind the line of skirmishers.

Two companies of the 3d Battalion at the northwest entrance of Gersthof, facing to the southwest and the wood. One company in line of skirmishers with close intervals, one company in column.

The companies formed in column are the subdivisions designed to break into the wood.

Two companies of the 3d Battalion in mass behind the 2d Battalion at *o* of Gersthof. Half-company of the 1st Battalion (originally right flanking column) at the southeastern entrance of Pötzleinsdorf.

The main body of the squadron of dragoons in the depression of the ground at about *h* of Weinhaus.

Subject-matter of the Solution.—3. It is assumed that your well-directed attack and your numerical superiority decided the enemy to break off the battle. He retires, with about six companies, the guns, and half-squadron of cavalry through Neuwaldegg on the Tulln road, and with two companies on the road to the Hameau.

How will you carry out the second part of your task, taking up a position at the northwest entrance of Neuwaldegg?

Solution.—3. Noticing the retreat of the enemy, I endeavor to carry out the original order to take up a position at the northwest entrance of Neuwaldegg.

I will take up a position on both sides of the road Pötzleinsdorf-Neuwaldegg, the right wing on the western slope of the Michaelerberg, the center above and in Neuwaldegg, the extreme left wing advanced on the Kreuzbühel. The position commands and covers not only the depression of the ground in front, and the intersection of many roads and paths, but also the roads on which the enemy is retiring.

I order, therefore, as follows:

"The 2d Battalion will move through the wood toward the road Pötzleinsdorf-Neuwaldegg and up the Michaelerberg, to occupy its western slope—from the road just mentioned to the bend in the road Neuwaldegg-Salmannsdorf.

"The 1st Battalion will move over Station 340 to Neuwaldegg, and will occupy with one company the wooded northern slope of the Kreuzbühel, and with another company the northwest entrance to Neuwaldegg. One company will be pushed forward into the small clumps of woods in front.

"The 3d Battalion will rally and post itself as reserve behind the corner of the wood under Station 386.

"The half-company of the 1st Battalion (originally right flanking column)

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will be posted on the northwestern slope of the Michaelerberg to the right of the 2d Battalion.

"The half-battery will seek a favorable position on and to the south of the road Pötzleinsdorf-Neuwaldegg, about 300 paces to the west of the point of the wood, behind which the reserve stands.

"The 1st Squadron of Dragoons moves with two sections to the section previously detached, to the western entrance of Neustift am Walde. One section remains with me. Offensive patrols will be sent out at once from the squadron toward Rohrerhütte and Hameau, and our right flank will be covered by a patrol over Salmannsdorf toward Dreimarkstein.

"The field hospital, established in Gersthof, will be drawn closer to the new position, at Pötzleinsdorf.

"The light field train to the field hospital."

Finally, I will send a cavalry patrol up the height west of Breitensee, with a corresponding report to the division commander.

54. For Captains of Infantry, Cavalry, and Artillery.

Map II. Atlanta Campaign II.

Situation.—An army corps is marching from the north over Worthendon's, upon and on both sides of the road Woodland-Wooley's Bridge, to reach the line of the Etowah, and sends on the 19th of July, 1864, at 8.30 A. M., a combined column from Turner's Mill over Casey's, Carr's, Connesenna Church, on the main road to Kingston. The enemy is advancing along the same road.

The combined column, of which you are the commandant, and which consists of the 7th New York Regiment, two troops of the 5th Cavalry and one heavy field battery, receives the following orders:

Problem.—"You will repel the enemy advancing along the western side of the Western and Atlantic R. R., and cover the left flank of the main column which will advance at the same height as your column. As an eastern limit to the movements of your column, the line of hills to the east of the road is designated. The 1st Battalion of the 21st Infantry has the special duty of moving through the ravine at McDow's and the woods at Dermont's, and establishing communication between your column and that of the main body."

Subject-matter of Solution.—Battle for heights.

1. Estimation of the relations of the ground.
2. General plan of action.
3. Orders issued.
4. Tracing of the column at 9 A. M.

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5. As you arrived with the advance-guard at Lovelace's you received the following dispatch from the commander of your cavalry :

"My patrols succeeded in passing beyond Carr's, but were there repelled by the enemy's cavalry, outnumbering them. I have occupied Beauford's with a dismounted half-squadron, and have thereby just succeeded in rendering an attempted advance of the enemy's cavalry, on the road toward Casey's, ineffectual. With the remainder of the troops I am at present with half-squadron in the depression between Beauford's and Carr's, and one squadron on the crest of the hill at Beauford's, two sections of which have dismounted to fight on foot. I have sent patrols toward the west of Carr's between the creek and the foot of the hills. The enemy's cavalry patrols are pushed out along the cross-road, north of Carr's. The main body of the enemy's cavalry is posted, under cover, on the north side of Carr's, near the ravine. Infantry patrols are visible on the heights to the south of Carr's."

What will you do on receiving this dispatch ?

55. For Captains of Infantry, Cavalry, and Artillery.

Map XX. Libochowitz.

A west corps is concentrating behind the border mountains about two miles west of Türnau, with the intention of advancing over Türnau and Libochowitz, on the 1st of June, to cross the border.. On the morning of the 29th of May it pushed out a detachment of the composition given below, under Colonel T, on Libochowitz, with orders to cover the proposed debouch of the First Corps from the mountains on the 1st of June, but not to cross the border with any subdivisions, other than patrols, up to that time.

With reference to the enemy, it is known that about 4,000 men are standing in Reichenberg, and about 20,000 men twenty-four miles farther east.

War has not yet been formally declared ; but the commencement of hostile measures is expected every moment.

Composition of the Detachment of Colonel T.—79th Regiment of Infantry ; 1st Squadron, 16th Regiment of Dragoons ; 5th Battery, 26th Regiment of Field-Artillery ; 1st Company, 10th Battalion of Pioneers.

Problem.—How will Colonel T carry out his orders ?

Solution.—Before proceeding to the actual execution of the orders, we will determine how Colonel T should conduct his advance on Libochowitz.

This is the first march in active service the detachment has ever undertaken. Although the corps before mobilization was stationed in this vicinity, and its concentration was effected by foot-marches, nevertheless, there has thus far been no danger of surprise by the enemy, and therefore the meas-

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ures for the safety of the troops, as required in the presence of the enemy, found application only in a limited degree on these marches of concentration, especially if they were not executed in mixed detachments. In the present case, a meeting with the enemy reported in Reichenberg is quite possible. The military situation requires, therefore, to the fullest extent, measures for the security of the troops. But, even if they were not required in this degree, the detachment commander would still do well to march as much as possible as required in actual service, in order to accustom all the reserves, who have just been called in, to outpost and reconnaissance duty. Even for the officers and men, who have not just been called into service, such a march will furnish much that is new, and to which the troops should become accustomed as rapidly as possible.

The order for the march, to be issued by the detachment commander, must contain :

1. Position of the enemy.
2. The orders received by the detachment commander.
3. The order of march of the troops.
4. The time of setting out of the advance-guard, and the road it is to take.
5. The time the main body is to follow.
6. Disposition of the heavy baggage.
7. Designation of the place where the detachment commander will remain.

The order of march of the advance-guard and the main body will be determined by the respective commanders. The commander-in-chief generally assumes command of the main body himself.

The advance-guard will probably be composed of an infantry battalion, the squadron of cavalry, and a detachment of pioneers. The squadron will not find suitable application in the mountain defiles, but, if placed at the head of column, information as to the condition of the ground in front and the presence of the enemy is more rapidly obtained ; moreover, as soon as the troops debouch from the mountains, the ground must be reconnoitred to a great distance in front.

The detachment of pioneers is attached to the advance-guard to remove any barricades or obstacles in the way.

In the main body of the detachment remain two battalions, the battery, the rest of the pioneer company, and a number of orderlies detached from the squadron of cavalry.

The order of march of the column will be somewhat as follows :

The squadron will take the lead and send out a section as its advance-guard, and this will place a *point* in its front. The *point* will consist of three men with a non-commissioned officer in command. Two of the men

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will ride on a line 300 paces in front of the advance-guard; the third follows to keep up the communication with the advance-guard; the non-commissioned officer in command will keep himself between the two leading men and the third man; the rifle is held at a "ready." The other two sections of the squadron follow some 400 paces in rear of the cavalry advance-guard. The gait will be alternately walk and trot, averaging a distance of about 200 paces per minute. As soon as the squadron takes up the trot the infantry of the advance-guard proper moves out. As the cavalry will very soon be out of sight and will gain considerable distance, it will be advisable for the infantry immediately following it to arrange its order of march as if no other troops were in front of it. The advance-guard battalion will therefore be immediately preceded by a company, the latter again by a section, and this again by a *point*. The *point* consists, as before, of a non-commissioned officer and three men, or sometimes of an entire section. This is followed at 200 paces' distance by a section, 300 paces in rear comes the rest of the company, and 400 paces farther to the rear the other three companies of the battalion and the pioneer detachment, as main body of the advance-guard. The main body of the detachment will follow 600 paces in rear of the advance-guard. At its head will ride the detachment commander with his staff, the commander of the battery, and several orderlies detached from the squadron, immediately in rear a closed battalion, then the battery, excepting the second section of its carriages,* lastly the last battalion of the regiment, the rest of the pioneer company, and the second section of the carriages of the battery.

We will now consider the order of march of the baggage-wagons belonging to these troops.

In general, baggage may be divided into heavy and light. To the latter belong the lead horses, medicine-wagons, the battalion ammunition-wagons, the first company baggage-wagons of the Jägers, the implements of construction and destruction of the pioneers, the sappers' wagon of the pioneers, and the ammunition-wagons of the cavalry division. To the former belong the staff-wagons, the wagons of the various branches of the service, the baggage-wagons not including the first company baggage-wagons of the Jägers, the sutler's wagons, and, if such are at hand, the commissary-wagons.

The light baggage is, as a rule, with the troops; the lead horses behind the battalion (squadron or battery), the medicine-wagons behind the battalion (or cavalry regiment), the battalion ammunition-wagons, as well as the first company baggage-wagons of the Jägers, in small detachments at

* The first section contains the three caissons of the battery and one forage-wagon; the second section contains the rest of the caissons, the other wagons, and one forge.

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the rear, otherwise in rear of the advance-guard (or main body), but in very large bodies of troops behind the brigades, the implements of construction and destruction, as well as the sappers' wagons, in rear of the pioneer company, the ammunition-wagons of the cavalry with the second section of the wagons of that battery to which they are permanently assigned.

The batteries, excepting several sutler's wagons, have no baggage proper. Part of its material follows, as first section, immediately after the six guns; the rest, as second section, in rear of the advance-guard or main body.

The heavy baggage marches closed, ordinarily with considerable distance from the rear of the troops, in its proper order, guarded by several horsemen.

In the case before us the following baggage-wagons will probably be found with the troops:

Behind the advance-guard battalion a two-horse medicine-wagon, at the rear end of the advance-guard a six-horse ammunition-wagon, behind each of the two battalions of the main body a two-horse medicine-wagon, behind the pioneer company a four-horse implement-wagon and a four-horse sappers' wagon, at the rear end of the main body two six-horse ammunition-wagons.

The heavy baggage will form the following train:

1. One two-horse staff-officer's baggage-wagon, of the detachment commander;
2. { One two-horse baggage-wagon, / One two-horse sutler's wagon, } of the squadron;
3. { One four-horse battalion baggage-wagon, / Four two-horse company baggage-wagons, / Two two-horse sutler's wagons, } of the advance-guard battalions;
4. Same as under 3, of the battalion at the head of the main column;
5. One two-horse sutler's wagon, of the battery;
6. Same as under 3, of the rear battalion;
7. { One two-horse company baggage-wagon, / One two-horse sutler's wagon, } of the pioneer company.

The heavy baggage will not be taken into the mountain defile till the detachment is certain of gaining the eastern debouch therefrom.

The length of the column of march from the *point* of the infantry of the advance-guard to the rear of the main body will be some 3,800 paces, hence, the rear of the main body will set out thirty-eight minutes later than the *point* of the infantry of the advance-guard, provided the troops had all been assembled at the same rendezvous.

If we assume that the general rendezvous for all the troops is eight miles from the eastern entrance of Türnau, and that camp is broken there at 5 A. M., the last of the light baggage of the main body would be set in motion at 5.38

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A. M. At this time the *point* of the squadron would have advanced about 7,600 paces, and its rear would be some 3,000 paces in front of the *point* of the infantry.

Since it is essential to determine as early as possible whether the ground is clear of the enemy, the squadron will make but a very short halt in the course of its march ; the rest of the troops must have a rest of about half an hour. In this manner the squadron will reach the heights east of Libochowitz toward 7 o'clock, the infantry toward 9.30, and the rear of the main body toward 10.

If the commander of the squadron sends back an orderly at a trot, immediately after his arrival at Libochowitz, with the report that the ground is not occupied by the enemy, this orderly will reach the detachment commander, at the head of the main body, about two miles west of Türnau, at a little after 7.30, probably just as the troops are about to make the principal halt. Toward 8 o'clock the detachment commander, riding forward with his staff, would reach Libochowitz, while the heavy baggage would, in consequence of this report, receive orders to come up before 9 o'clock, and could reach the western entrance of Türnau by 1 P. M.

We will now put ourselves in the place of the commander of the squadron, who will reach Libochowitz at 7 o'clock, and consider the measures to be taken by him.

The military situation has been made known to the commander of the squadron through the detachment order. From the two heights east of Libochowitz the ground may be overlooked till beyond the border. But, whether or not the villages are occupied by the enemy, must still be determined. The squadron will move up to the western slope of the height + 110′ and dismount, stationing a vedette on each of the two heights + 90′ and + 110′, and send out three patrols. One of the latter will ride over Rauschwitz, Prelwitz toward Mischlowitzf, the second to Minkwitz, the third over Prostau to Samnitz.* By the time the detachment commander arrives on the heights of Libochowitz the reports of these patrols can be in. Let us assume that the villages are clear of the enemy, and that nothing new relating to the enemy has been learned ; the detachment commander must then decide in what direction he may expect to meet an advance of the enemy, in order to properly secure, according to his orders, the proposed debouch of the corps from the mountains on the 1st of June. Only after he

* It is a question whether patrols may properly be sent over the border before war is declared. The corps is to debouch from the mountains five kilometres from the border, hence to secure its debouch it must first occupy Libochowitz. But an outpost detachment at Libochowitz must secure its own position by reconnaissance at least as far as Samnitz, Minkwitz, and Mischlowitz, and therefore cross the border.

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has decided this point, will he give his orders for posting the troops. In order not to lose time, these orders must be issued by the time the infantry arrives, that is by 9.30 o'clock.

The detachment commander, after receiving the orders to advance from his division or corps, on the evening of the 28th of May, probably obtained a clear idea of his task by the assistance of the map of the general staff. Under the assumption that the reports relating to the enemy are true, he would have said to himself: The detachment may be attacked at any moment by the force of the enemy which was reported in Reichenberg, and must be able to resist such an attack till the 1st of June. The 20,000 men of the enemy, reported as being some twenty-four miles to the east of Reichenberg, can appear before Libochowitz on the 1st of June only in case they also set out for the border on the 29th of May. In this case the detachment may, toward noon of the 31st of May, be in a situation where it may be attacked by superior forces, against which it will not be able to make a stand. If, however, these hostile masses do not attack till the morning of the 1st of June, an attempt must be made to offer resistance at least till the corps has passed Türnau. Serious trouble need not therefore be apprehended before the 31st of May. Until that time it may indeed be forced to offer battle, but only with forces of numerically unimportant superiority, which may be more than counterbalanced by proper use of the ground.

In regard to the position which the detachment commander should take up to carry out his orders, so far as regards the configuration of the ground, there can be no doubt. The only position, which can be held effectively is formed by the two heights lying on the east of Libochowitz. It commands in its front the main line of attack of the enemy (from the direction of Minkwitz). Even for a hostile movement over Samnitz or Mischlowitz the heights + 90′ and + 110′, respectively, would furnish the main points of support of the defense. On this point a conclusion will, therefore, be reached in a few minutes.

The next question to be considered is how will the troops be posted and disposed in order to be ready for an attack by the enemy at any and all times. Bivouac furnishes the highest degree of preparedness for battle. It is preferred by all anxious commandants, even when not at all necessary, when the circumstances permit cantonments. The best bivouac is, however, worse than the poorest cantonment—uses up the troops more, at least. Therefore it is a mistake to bivouac when cantonments are permissible. In view of the fact that the enemy is still ten miles away, that the ground may be overlooked for a considerable distance, and that the enemy, unless he desires to wade through water up to the waist, is confined to the bridges, it appears

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to be quite sufficient to have only the outposts bivouac; the main body of the detachment can therefore go into cantonment.

Only two villages can be used as cantonments, Libochowitz and Türnau. Prostau and Rauschwitz are too far on one side of the defensive position to be used as cantonments, if the commander does not wish to extend his outposts beyond the flanks, over these villages, by which the line would extend over more than 6,000 paces, a distance too great to be covered by so small a detachment. Libochowitz alone can quarter the detachment. But, aside from the fact that, in such a quartering, the troops would lie too close together, there are special advantages in making use of Türnau also in the cantonment. In this village the troops not immediately required at the beginning of a battle may obtain better rest than in Libochowitz.

The battery will find application on one of the two heights + 90′ or + 110′. Therefore, gun epaulements will be prepared on both heights. Since a surprise by day is impossible, on account of the clear view which may be obtained of the ground, the guns may be housed, the horses unharnessed, and men and horses quartered in an inn in Libochowitz. A non-commissioned officer and six men will keep guard over the guns. Both sections of wagons of the battery may go into cantonment in Türnau without any misgivings. The limbers of the pieces contain ammunition sufficient for more than an hour's firing. In this time the section, even in the most unfavorable circumstances, would be on hand from Türnau. But, as the guns are not needed during the night, these, too, with their men and horses, may pass the night in cantonment in Türnau.* The cavalry, not on outpost duty, and a company of infantry, will also be quartered there.

Whether or not the heavy baggage should be taken through the defile is a point for consideration. Before the 31st of May, however, we will hardly be opposed by superior forces. Moreover, it is a great inconvenience to the troops to do without baggage for several days. Consequently, the heavy baggage will probably be parked at the western entrance of Libochowitz until the 31st of May.

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* It appears very inconvenient for a part of the battery to change its cantonment twice daily, and yet its chief will probably prefer this to passing the night in Libochowitz, where he may be soon forced to stand saddled and harnessed all night.

On the 25th of December, 1870, after the battle of Le Bourget, as the French remained with strong forces in front of the Guards Corps, it was decided to strengthen the garrison of Le Blanc-Mésnil, where, up to this time, only infantry had been posted, with a battery of the Guards. The battery chief concluded that he would have to keep his horses there, saddled and harnessed, all night, because the enemy held Draney, 3,000 metres distant, with considerable strength. To avoid this evil, the battery chief received permission, on his representation, to remain overnight in his late cantonment, two miles in rear. This was done twelve days in succession, without any detriment. Men and horses moved into the same previously prepared quarters.

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By the time these conclusions are arrived at on the part of the detachment commander, it will be about 9 A. M. At this hour the head of the infantry will be debouching from Türnau. The detachment commander will then direct the battery chief at his side to send a trumpeter with orders for the two section of wagons to go into cantonment in Türnau. He will direct the commander of the squadron to have quarters prepared there for two sections of his troop. A written order should be sent back to the main body, to the effect that the infantry company at the rear of the column will be quartered in Türnau, and that it will guard the town by posting sentinels, and direct the heavy baggage, which will arrive about 1 o'clock, to proceed to Libochowitz. All the troops will at once send forward orderlies for orders.

The order now dictated by the detachment commander to his adjutant should contain only the orders immediately necessary, but, in order that all the troops may have a clear idea of the situation, it will also contain a part of the verbal directions just given. If all the dispositions that will be necessary for the 29th of May be included in this order, the troops would have to wait an hour longer before being able to retire to rest.

The order will read somewhat as follows:

Detachment Order.

"LIBOCHOWITZ, *May* 29, 18—, 9 o'clock A. M.

"1. Mischlowitz, Minkwitz, and Samnitz, are clear of the enemy.

"2. The detachment will go into cantonment and establish outposts.

"3. Major A. has command of the outposts, consisting of one battalion and half-squadron; the bivouac of its main body will be on the western slopes of the heights + 110′ and + 90′, on both sides of the road to Minkwitz; he will hold the heights against attack, and patrol over Mischlowitz, Minkwitz, and Samnitz.

"4. The 2d and the Fusilier Battalion (excepting one company of the latter), and the pioneer company, will go into cantonment in Libochowitz.

"5. The battery will put up epaulements for the guns on the height + 110′, and place the guns under cover. Men and horses of these guns will be quartered in a house and yard in Libochowitz.

"6. One company of the Fusilier Battalion, the half-squadron not on outpost duty, and the two sections of wagons of the battery, will go into cantonment in Türnau.

"7. The light and heavy baggage of the troops in cantonment in Libochowitz, as well as the battalion ammunition-wagons of the outposts, will be

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parked at the western entrance of this village, the rest of the baggage with the outposts and at the western entrance of Türnau.

"8. Orders will be delivered at 5 P. M. to-day in Libochowitz.

(Signed) "T.

"*Colonel and Detachment Commander.*"

The time, during which the adjutant is delivering this order to the orderlies sent to receive it, the detachment commander will employ in formulating his report to division or corps headquarters. As such reports are of great importance, we will briefly discuss the subject in general.

The officer making the report is, by his signature, responsible for its correctness; he must therefore carefully weigh the subject-matter as well as the wording of the contents. Its style must be brief and definite, like that of a telegram. He must distinguish between what is absolutely certain, what the reporting officer saw himself, what another saw and reported, and what is only rumor or surmise. The circumstances must be judged calmly and without attempting to make them conform to any preconceived views; nothing should be too lightly treated, nothing exaggerated. Often it is of great importance to know merely that the situation has not changed, or that the enemy could not be found. As regards the form of the written report, it must be written on strong paper, and so clearly that it may be read even in a poor light. In the right-hand upper corner, place, date, and hour are written, under the report itself the name and rank of the officer sending it. The report is inclosed in an envelope, properly addressed, and the time of sending it, as well as the gait at which the orderly is to ride, placed on the envelope. † signifies alternately *walk* and *trot* (about five miles an hour), †† signifies a *trot* (about eight miles an hour), ††† signifies as rapidly as possible. The envelope, after the receiver notes on it place, date, and hour of its reception, is returned as an acknowledgment of its receipt.

The report to be furnished in the present case will read:

Report No. 1.

"HEIGHT SOUTH OF LIBOCHOWITZ, *May* 29, 18—, 9.30 o'clock A. M.

"The head of column of my infantry is just entering Libochowitz. Cavalry patrols have found Samnitz, Minkwitz, and Mischlowitz unoccupied by the enemy. Of the enemy nothing has been seen or heard. I will occupy Libochowitz with the main body of the detachment, the heights to the north and south with outposts, and defend these points against attack.

(Signed) "T.

"*Colonel and Detachment Commander.*" *

* Gait: †.

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He naturally asks himself how this report will reach the division or corps headquarters. In view of his being a distance of several miles therefrom, a relay line will have been previously established, and in the following manner:

Every three to six miles relays of from three to nine cavalrymen under a non-commissioned officer will be posted. Of each of these relays about one third are kept constantly prepared to ride, and one man is posted to observe the road, while the second third may unbridle and feed, and the third unsaddle. Every non-commissioned officer in charge of post will keep a written record of all messages passing through—the address, time of passage, and the names of the orderlies bringing and returning it. He will furnish each of his orderlies, as they set out, a check, on which the delivery of the message at the next post will be acknowledged. The position of the relay posts will be indicated, by day as well as by night, by a clearly visible landmark.

Immediately after sending off his report per relay, the detachment commander will proceed to Libochowitz, in order, as commandant of the cantonment, to make the necessary arrangements in this town. He might, indeed, detail another officer for this duty; but in this case that is not advisable, because the battalions serve as outposts in succession, and hence the duties of the cantonment commandant would fall into new hands at each change. Colonel T will now assign to each subdivision of the troops in the cantonment its limits. Starting from the point of intersection of the roads in the center of the town, the houses on the roads to Minkwitz and Prostan will be assigned to the 2d Battalion and the men and horses of the pieces of battery; and those on the roads to Türnau and Rauschwitz will be assigned to the Fusilier Battalion and the pioneer company. As the outposts, stationed immediately in front of the town, exclude the possibility of a surprise, the following town guard is all that is required; an interior guard of the 2d Battalion, in the vicinity of the eastern entrance on the road to Minkwitz, with a sentinel on post and a double post at each of the entrances on the roads to Minkwitz and Prostau; an interior guard of the Fusilier Battalion at the intersection of the four roads, also with one sentinel on post and a double post at each of the other entrances of the town and near the baggage park to the west of the town. For the night, from 8.30 P. M. to 4 A. M., the Fusilier Battalion will also establish a safety-guard on the road to Rauschwitz, at the southern edge of the wood. The latter will push out a double post with *examining troop* on the road itself, and another double post in front of the southeastern corner of the wood. Colonel T will then order an officer of the day to be detailed from the 2d Battalion, and an officer of the round from the Fusilier Battalion. The former will be

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responsible for the preservation of order in the interior of the cantonment, and will see that the town streets are not blocked by wagons; the latter will have charge of the inspection of the guards, as well as the observation of the conduct of suspected civilians. In order to betray as little as possible of the routine duty, to the inhabitants of towns in the enemy's country, and to avoid unnecessary alarms on account of misunderstood calls, one call only will be sounded—the general assembly. The detachment commander will make arrangements in his quarters with the mayor of the town for obtaining the necessary supplies. For the 29th day of May the men can obtain subsistence in this rich town from their landlords. In attempting to supply the troops for the subsequent days by this method difficulties would probably be encountered. The necessary supplies will therefore be obtained by the system of requisition, the receipts prescribed by regulations being furnished and the issues made by the regimental quartermaster. A house should be arranged as a hospital, and another as a guard-house for prisoners. The mayor of the town will also be directed to have all persons suspected of being spies arrested and reported, and, on the other hand, to enlist the services of persons who are able and willing to obtain news of the enemy at Reichenberg.

After the detachment commander has in this manner made his arrangements as cantonment commandant, he will make preparations to post the outposts, and give the commander of the pioneer company accompanying him, directions regarding the fortifications to be constructed.

Let us now put ourselves in the place of the commander of the outposts, and determine the measures to be adopted by him.

On each of the heights + 90′ and + 110′ a vedette had been posted before the arrival of the infantry, and patrols had been sent to Mischlowitz, Minkwitz, and Samnitz. These are all the measures necessary for observing and reconnoitring the foreground. Under the protection of this small number of men the battalion and the half-squadron can camp, as main body of the outposts, on the western slopes of the two heights, but they should be so far to one side of the road that the bivouac can not be seen from Minkwitz. Even camp-guards, as a protection against surprise, are not necessary in this case. If a half-battalion bivouacs on each side of the road, to one of which the half-squadron is attached, each will have to post, besides the interior guard, only a guard to prevent unauthorized communication with the town.

The detachment commander will ask the outpost commander how he intends to post his outposts for the night. In reference to these dispositions for the night the most various plans may come up for consideration. The simplest and most appropriate measures would probably be to push out

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a detached cavalry post under a non-commissioned officer close up to the three bridges over the Zama, and not to surround the bivouac of the main body, at a distance of about 800 paces, by guards, having to fulfill the double object of camp-guards and outposts.

Of such guards, guard No. 1 will be established on the southeastern slope of the height + 110′, with two double posts; No. 2 on the road to Minkwitz, about 1,200 paces in front of the eastern entrance of Libochowitz, with one double post and *examining troop* on the road; No. 3 on the northeastern slope of the height + 90′, with two double posts; No. 4 on the road Libochowitz-Prostau, with one double post and an *examining troop* on the road, and a detached non-commissioned officer's post on the road leading to the factory.

Each of these guards will consist of a half-section, and Nos. 1, 2, and 3 will each receive two messenger orderlies. The pioneer company will, as its first work, construct defensive trenches for these four guards. No fire will be kindled in No. 1, 2, or 3, so that the enemy may obtain no information as to the disposition of the troops. The main body of the outposts needs no other protection against surprise; but the interior guard will post a double post on each of the heights. This arrangement will remain in effect from 8.30 P. M. till 4 A. M.

The detachment commander will point out to the commander of the pioneer company the points where shelter-trenches or other fortifications are to be constructed.

After all these verbal directions are given, the following detachment order will be dictated at 5 P. M.:

Detachment Order.

"HEADQUARTERS OF THE CANTONMENT, LIBOCHOWITZ, *May* 29, 18—,
5 o'clock, P. M.

"1. The battery will move this evening at 8 o'clock to Türnau and go into cantonment; it will resume its present position at 5 A. M. to-morrow, and will then construct epaulements for the guns on the height + 90′ north of Libochowitz.

"2. The men in cantonment may undress for the night; in Libochowitz, however, one man will keep guard in each set of quarters, and a light will be kept burning.

"3. The outposts will be relieved at 9 A. M. by the 2d Battalion and the other half of the squadron, and will occupy the quarters which have become vacant in Libochowitz and Türnau respectively. The 1st Battalion will post town guards, like those now established by the 2d Battalion, and will have an officer of the day detailed.

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"4. Two mounted men of the cavalry of the outposts, one of them a trumpeter, will be ordered to report at once at headquarters.

"5. Countersign : ——

"Parole : ——

(Signed) "T.

"*Colonel and Detachment Commander.*"

Let us now assume that the detachment commander receives notice from his division commander, on the evening of the 29th of May, that war has been declared. He will then hand the messenger who brought the notice, besides the envelope on which place, date and hour of its reception were noted, a report of the state of affairs, such as :

Report No. 2.

"In front of Libochowitz nothing new."

At the same time an orderly is sent with a written order to the squadron in Türnau, to the effect that one officer and eight dragoons will report at headquarters at 4 A. M. to ride as patrol to Reichenberg.

Let us assume, moreover, that this patrol reports at 10 A. M. on the 30th of May that the enemy, consisting of several battalions, cavalry and artillery, left Reichenberg at 8 o'clock and took the road to Minkwitz. The detachment commander will cause the general assembly to be sounded in Libochowitz, and will send a trumpeter to carry the signal of alarm to Türnau, together with a written order to the effect that all the troops, including the 2d section of wagons of the battery, will advance toward Libochowitz, the 2d section of wagons halting, however, at the eastern entrance of Türnau.* The outpost battalion will occupy the height + 90′, the Fusilier Battalion the height + 110′, and the 1st Battalion and the pioneer company will remain for the present at their post in Libochowitz. The squadron will take up a position under cover on the southwestern slope of the height + 110′, one section, however, moving out to reconnoitre on the road to Minkwitz ; the horses will be put to the guns, and the guns manned ; the heavy baggage, as soon as the troops have arrived from Türnau, will march back, under the protection of several dragoons, to the western entrance of Türnau.

Toward 11 o'clock A. M., let us assume, hostile cavalry appears on the heights on the other side of the Zama, toward 12 o'clock the enemy occupies Minkwitz with infantry ; but no attack takes place, the enemy, on the

* The orders relating to the second section of wagons of the battery ordinarily fall to the battery chief. In this case the detachment commander gives them, because, the detachment, having but one line of retreat, may be seriously embarrassed if the second section should take up a faulty position.

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contrary, posting outposts toward 1 o'clock on the hills on either side of Minkwitz, as well as at the western entrance of the town. In the face of this position taken up by the enemy the detachment will exercise greater care than the previous day to hold itself in readiness for battle.

The detachment commander will issue the following order:

Detachment Order.

"East of Libochowitz, *May* 30, 18—, 1 P. M.

"1. The enemy has advanced from Reichenberg to the border, and has occupied Minkwitz, as well as the hills to the north and south of this village, with outposts.

"2. The 2d and the Fusilier Battalions, as well as a half-squadron, will remain on outpost duty. Major B will bivouac with the 2d Battalion and a section of dragoons on the western slope of the height + 90′, secure the ground north of the road to Minkwitz against surprise, and hold the height against attack. Major C will bivouac with the Fusilier Battalion and a section of dragoons on the western slope of height + 110′, secure the road to Minkwitz, as well as the ground to the south, against surprise, and hold the height against attack.

"3. The 1st Battalion and the pioneers will move into their quarters. The former will also occupy the western and southern entrances of the town, and post a guard on the southern edge of the wood to the south of Libochowitz at once.

"4. The half-squadron, not on outpost duty, will go into cantonment in Libochowitz.

"5. The battery will send the horses of the guns and the first section of wagons to Libochowitz; the guns will be kept manned by as many men as may be necessary to fire continually.

"6. The second section of wagons of the battery will go into cantonment in Türnau, the heavy baggage will be parked at the western entrance of Türnau.

"7. Countersign: ——

"Parole: ——

(Signed) "T.

"*Colonel and Detachment Commander.*"

Apparently against all rules two thirds of the entire infantry remains on the line of outposts. But if we consider the importance of the situation, and that the debouch of the corps depends on the assumption that the outposts are not forced from the position, no fault will be found with its being so perfectly prepared for attack. Any moment the enemy may advance to

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the attack and open fire. The entire detachment of Colonel T constitutes now, in a certain degree, the outposts of the corps.

Nothing has as yet been ordered with reference to the measures to be adopted for the night, because the situation is likely to change before that time; if not, the detachment commander will give toward evening the following verbal orders:

"The guns will be parked from 8.30 P. M. till 4 A. M. at the western entrance of Libochowitz, and then return to their epaulements ready to open fire.*

The men in cantonment in Libochowitz will remain dressed during the night; in every set of quarters one man will stand guard; all the quarters and stables will be lit up, all horses harnessed or saddled from 9 P. M. till 4 A. M."

The outpost duty for the day will still fall to the two sections of dragoons only. For the night, the measures adopted for the night of the 29th–30th of May can not be preserved. The detached cavalry non-commissioned officers' posts will not be able to hold the bridges, as they would be too near the enemy, and could easily be shot down. The passages over the Zama must therefore be abandoned, and the guards must consequently be strengthened. Between the former guards No. 1 and No. 2, as well as between No. 2 and No. 3, another guard will be inserted. The guard No. 3, on the road to Minkwitz, will be increased in strength to one section. As patrols must be sent forward as far as the bridges, and, as the distance is too great for infantry, each of the guards, No. 1 (on the southeastern slope of height + 110′), No. 3 (on the road to Minkwitz) and No. 5 (on the northeastern slope of height +90′), will receive one non-commissioned officer and six privates of dragoons.

At 1 o'clock, P. M. (on the 30th of May), the detachment commander will send the following report to headquarters of his division:

Report No. 3.

"Heights south of Libochowitz, *May 30, 18—*, 1 P. M.

"At ten this morning the report was received from the officer's patrol, sent to Reichenberg at 4 A. M., to the effect that the enemy, including several battalions, cavalry, and artillery, broke camp at Reichenberg and took the road to Minkwitz. In consequence of this movement, occupied with detachment the heights north and southeast of Libochowitz. At about 11

* It is not worth while to send the battery to Türnau, where the horses may be unsaddled, for the short time from 8.30 P. M. till 4 A. M., but if the battery commander prefers it there is no objection.

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A. M. hostile cavalry appeared on the heights beyond the Zama ; toward noon the enemy occupied Minkwitz with infantry. No attack, however, has taken place ; the enemy, on the contrary, has posted outposts on either side of Minkwitz, and at the western entrance of this village.

"I have occupied in force the two heights to the north and south of Libochowitz and will hold them against attack.

(Signed) "T.

"*Colonel and Detachment Commander.*"

The orderly, who is to deliver this report, must ride as rapidly as possible (†††) ; for the general may possibly wish to make arrangements to-day in consequence of this movement of the enemy.

At 8.30 P. M. the following report will be sent to division headquarters :

Report No. 4.

"There has been no change in the situation as reported at 1 P. M."

(Gait of orderly : ††.)

In case the detachment commander receives no acknowledgment of the receipt of the report sent at 1 P. M., by 8.30 P. M. it may possibly never have been delivered, or the orderly, returning to Libochowitz with the acknowledgment of its receipt, or possibly with other directions also from the commanding general, may not have reached his destination. In this case, instead of the report just given, the report of 1 P. M. will be sent again, and the information added :

"The above was sent at 1 P. M., but no acknowledgment, or anything relating thereto, has been received."

(Gait : †††.)

We purposely forbear to add, "nor any orders received." This might be interpreted as an insinuation that Colonel T is in doubt as to what he should do. On the other hand, it must be stated that nothing has been received in reply, as it is extremely probable that the commanding general will send some directions in consequence of this third report.

The 31st of May is the most important day for the detachment commander. If the 20,000 men of the enemy, reported twenty-four miles east of Reichenberg, also broke camp on the 29th of May, the detachment may be compelled to retreat on the 31st of May under the greatest difficulties. The detachment must therefore be in perfect readiness for battle on the morning of this day. If the enemy does not attack with superior forces on the 31st of May, the detachment must endeavor to hold the position with all its strength, so that the debouch of the corps from Türnau may take place in safety.

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The preceding problem will serve as an example of the fact that for special relations of the ground, for particular military situations, our theories are not adequate. In a peculiar manner is the detachment of Colonel T, compressed into a narrow compass. It dispenses with the depth, generally so much to be desired, as it is confined to narrow limits on the one side by the mountain defile, on the other by the border-line. Even if the border, as was the case after the declaration of war, could have been crossed by the detachment, the commander might still have preferred to remain on the heights east of Libochowitz, as the ground in front offers no points of support, and he could not take any chances of being forced from Türnau.

This compact position necessitates special measures for security. Thus, two thirds of the entire detachment are finally on the line of outposts. In this situation the detachment must be prepared to pass two days. If it proves equal to the undertaking the corps can debouch, and perhaps afterward support the other corps effectively in the battle; but if it be repulsed in the defile the corps can not debouch, and the other corps may be overpowered by the enemy. Thus, the execution of a task, like that before Colonel T, may have a great influence on an entire campaign.

56. For Captains of Infantry, Cavalry, and Artillery.

Map XIX. North Anna.

Situation.—Hanover Junction and the neighboring high ground are to be defended against an attack from New Market. The position is to be defended by a detachment, now at the station, consisting of the 1st Connecticut Regiment, Squadron D, 4th Cavalry, and Battery I (Graham's), 1st Artillery.

Problem.—Exercises in issuing verbal orders in the field.

The orders required are those necessary to carry out the above dispositions.

57. For Captains of Infantry and Cavalry.

Map X. Atlanta, Ga.

Situation.—The Tenth Army Corps on July 28th, at 9.15 P. M.

The 1st Brigade has taken the heights to the nortnwest of Atlanta, and occupied the city; the 2d Brigade stormed the position at Ezra Church; the 3d Brigade, the 2d Regiment of Cavalry and the Corps Artillery Reserve are at Bethel Church. The 4th Brigade is concentrated on the road between Moore's Mill and Atlanta.

Problem.—The corps commander orders:

The 1st Brigade will encamp south of Moore's Mill.

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The 2d Brigade at Ezra Church.

The 3d Brigade and the artillery reserve at Bethel Church.

The 2d Regiment of Cavalry north of the city, between the roads of Bethel Church and Jones's Mill.

The 4th Brigade will occupy Atlanta and have charge of the night duty and outposts. Strong main guards near East Point, Floyd's (near Sugar Creek), Gilreath's (on Decatur road), and Jones's Mill.

The 3d and 4th Squadrons of the 7th Cavalry are attached to the brigade. The headquarters is established in the court-house of Atlanta.

The corps headquarters remains at Bethel Church.

Subject-matter of the Solution.—The night duty of the 4th Brigade.

1. Estimation of the relations of the ground, with reference to the outpost duty.
2. How do you intend to carry out your orders ?
3. What orders will you give ?
4. Tracing of the positions at night.

58. For Captains of Infantry, Artillery, or Cavalry.

Map VIII. Atlanta Campaign III.

Situation.—An army has entered northwestern Georgia from the southeast. After a severe fight, the heads of the columns occupied the line Rowland's Mill-Barge's (south of Stilesboro), Cross Knob, on the evening of June 10th.

The detached corps, constituting the right wing, and consisting of two divisions, which moved over Big Shanty-Ackworth, arrived without resistance on the same day at nightfall near Allatoona, the advance-guard in Cartersville. This advance-guard consists of two regiments (six battalions) infantry, four squadrons of cavalry, one (9 cm.) field-battery, one engineer company, one section of the field hospital corps.

The advance-guard has occupied the bridges over the Etowah, small detachments posted on the neighboring heights, on the right bank of the river.

Problem.—You are commandant of this brigade, constituting the advance-guard. At 3 A. M., June 11th, you receive the following orders from the corps commander :

"Our main body advanced yesterday, after a hard fight to the line :

"Cross Knob-Barge's-Rowland's Mill, our Second Army Corps is at Goldsmith's on Pumpkin-Vine Creek.

"Between Stilesboro and Euharlee strong columns of the enemy are

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posted in échelon. A corps (perhaps the Twentieth), some 30,000 to 40,000 strong, is said to have arrived at Cassville yesterday, from the direction of Adairsville.

"The commander-in-chief proposes to force the passage of the Etowah near Stilesboro at noon to-day. The Second army will be concentrated by that time near Colonel Byles's. Our corps is to be concentrated at noon on the plateau at Cass Station.

"The Twentieth corps of the enemy will probably advance on Kingston to-day; it is, however, quite possible, especially when informed of our movements, that it will take the route Johnson's-Davis's, and we will then come in contact with it.

"The advance-guard brigade is hereby ordered to begin the passage of the Etowah, with the main body of its troops, over the railroad-bridge, at 6 A. M., and advance over Howard's to the height to the east of Cass Station, and take up a position there.

"The advance-guard will take only the wagons of the field hospital detachment and four ammunition-wagons per battery; all other ammunition-wagons and the rest of the train, as well as those of the other troops of the 1st Division, will be transferred to the train of the 2d Division.

"The head of column of the main body of the 1st Division, following next after the advance-guard, will debouch over the Old Bridge below Cartersville at 6.30, and the passage of the troops of the corps will then continue uninterruptedly.

"The main body of the 1st Division will be protected on its left flank by a battalion, which will move over the artificial mount to the height near the cross-roads at Rutland's, and thence along the crest of the hill to McGee's.

"Beyond Young's (above Milam's Bridge) the 1st Division will incline in the direction of New Hope Church, but halt across the road this side of the plateau, until the 2d Division, following on the road toward Davis's, has arrived at the same height.

"I will detach Squadron E, 6th Cavalry, to Young's (below Milam's Bridge), whence it will push out patrols toward Johnson's, McFagden's, and Colonel Byles's, after nightfall. The squadron will cross the Etowah over Good Bridge at 6 A. M. The company of engineers of the 2d Division will then construct a temporary bridge at Turchin's, and at a point of the river above Dobb's will throw over a pontoon-bridge for the infantry, and then follow its division.

"I will remain with the head of the 1st Division."

Subject-matter of the Solution.—1. Estimation of the relations of the ground.

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2. What orders are issued for the march ?

3. Tracing of the situation at 6.25 A. M.*

A number of minor problems may be developed from this, such as the conduct of the commandant of the squadron sent to Young's (below Milam's Bridge), or of one sent forward on the road Bridge's-Milam's, or of a half-squadron ordered from Young's (below Milam's Bridge) over Fritzel's and Howard's to Glasgow's. The cavalry-officers can carry out their reconnaissance properly only after the field in which they are to move has been sketched out.

Continuation of the Problem.†—The following is a summary of the information received by the commandant of the advance-guard up to 6.25 :

Small hostile cavalry patrols have appeared on the heights west of Young's (above Milam's Bridge), and retired in the direction of Glasgow's, New Hope Church, and the hills to the west of McGee's.

Dispatches at 6.30.

From the right. Arrived at Howard's. Small cavalry patrols of the enemy in front of us, retiring over Dobbs's. On the hill at James's solitary cavalry visible.

From the front. Several smaller cavalry patrols retiring before us. Larger subdivisions of cavalry, occasionally a troop, advancing from Cass Station toward New Hope Church. At Holden's infantry appear to be posted.

From the left. A hostile patrol retiring on the hills northwest of McGee's. Woods at McGee's clear. At Davis's nothing visible.

Are any orders required ? If so, give them.

Dispatches at 6.40.

From the right. Howard's and Glasgow's unoccupied. On the hill at Holton's and on the hill at James's the flashing of bayonets is visible.

From the front. Hostile cavalry conducts itself as if taking observation. New Hope Church and the woods to the west clear of the enemy. Our cavalry patrols, directed toward Holden's driven back by musketry-fire from the edge of the woods. On the highway at Cass Station considerable flashing of bayonets.

From the left. Reached hills to northwest of McGee's. A subdivision of the enemy's cavalry (possibly a squadron) is just moving from the direc-

* Adapted from problem given to Captains of the Zentral-Infanterie-Kurs, Vienna. It was dictated at Young's (above William's Bridge), and one hour given for solution.

† After the problem dictated at Young's was solved the class moved on to another convenient point, where the dispatches, which had been received up to that hour were dictated, the officers required to issue their orders, and the class moved on to another point.

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tion of the Mountain Spring toward Davis's. Movement of troops from Bridges toward Cass Station.

Are any orders required? Give them.

Dispatches at 6.50:

From the right. Glasgow's clear. On the height at Holton's the enemy's troops are posted with cannon.

From the front. In the woods at Holden's, on the hill at James's and this side of Cass Station infantry are concealed. From Holden's two shots have just been fired from the guns there. On the height east of Cass Station troops are visible. Kind of arms not distinguishable. A long column is moving from Bridges toward Cass Station; its head has passed Smith's.

From the left. Between Mountain Spring and Davis's the enemy has deployed three squadrons, which are apparently awaiting developments. The hill to the west of Eaves's and Davis's unoccupied.

What orders will you give? Tracing of the situation of the brigade at 7.15.

(The main problem now to be solved by the commandant of the advance-guard is to secure the necessary space for the debouch of the corps through the defile at Holden's. He must therefore occupy the most favorable points as rapidly as possible.)

59. For Captains of Infantry, Artillery, and Cavalry.

Map II. Sherman's Marches and Atlanta Campaign II.

Situation.—Our army: The Tenth Corps in the bridge-head of Etowah. The Fifth and Ninth Corps, the 1st, 2d, and 3d Divisions of Cavalry reserve and the 1st Virginia Cavalry Division in and about Allatoona; the Third Corps at Stilesboro.

The enemy's army: Right wing (Army of the Tennessee) on the road Jasper-Canton (see large map), First and Second Corps on both sides of the upper Etowah—the advance-guard in the line Canton—Hickory—Troy—Vickory Creek Post-Office.

Problem.—A brigade, recalled from southern Tennessee over Subligna, to the army moving toward Allatoona, and consisting of six battalions, one squadron, one 3·2 inch field-battery is to join your corps at Cartersville on the 23d of July. At 4 P. M., on the 21st, it entered Mills after a severe march in the hot sun.

The brigadier-general is aware that the foraging-station of Talking Rock (see large map) is occupied by one battalion of our army.

In Mills, he learns that a strong force of the enemy is stationed in Rome,

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the cavalry of which reconnoitred as far as Mills and Adairsville on the previous day.

According to the latest dispatches, there was no trace of the enemy at Robbin's Mill (three miles south of Mills) toward 3 P. M., nor in the town of Calhoun, nor at the cross-road at Shirvert and White's T. Y., nor at Bowden's Church. The brigadier-general, therefore, concludes to give his troops sufficient time to eat and rest, and then rapidly gain the main road Rome—Adairsville—Salacoa—Talking Rock.

Subject-matter of the Solution.—Night-march of the brigade from Mills's to Salacoa.

1. Considerations of the relations of the space and roads.
2. Leading thought for the execution of the march.
3. What orders are issued ?
4. Tracing of the position of the subdivision on the following day at 8 A. M.

NOTE.—The brigade begins the march at 12 midnight. Up to this hour no new dispatches regarding the enemy have been received.

Solution.—Between the Oostenaula and the head-waters of the creek running past Salacoa and Two-Run Creek, the map shows a plateau, toward the eastern border of which the road Sonora P. O. to Adairsville inclines. In the eastern portion are several rounded prominences, then the slopes fall away gradually to the head-waters of the two creeks. The western border of the plateau is sharply marked, the slope to the Oostenaula Valley, steep and wooded.

The water-shed is near the western border.

Innumerable creeks run from it, forming deep valleys, and hence constituting in places good tactical lines of defense for a front to the north or south, as, for instance, at Salacoa and Large Spring.

Adairsville is situated on the eastern slope of the plateau ; the plateau border (at McClames's and Ellson's) commands the town. Front toward the north these heights furnish a good position; front to the south they do not, because the scattered clumps of woods are too close.

2. The enemy's garrison in Rome may act in three different ways : it may remain there, it may advance against Mills's, or it may attempt to oppose me on the main road Rome-Talking Rock.

The first and second do not concern us, but the third may. I must therefore take this possibility into consideration.

It is possible the enemy has heard of my arrival to-day; perhaps a dispatch relating thereto was sent to him before noon, and he may have received it by 4 P. M.; he may have already taken the road and marched part

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of the way to-day, and, if he uses a part of the night too, he may be on the heights near Adairsville by to-morrow morning. Farther he can not well be, because from Rome to that point is a distance of fifteen miles, with much up and down hill.

I will therefore assume that the enemy may be posted on the heights at Adairsville (Ellson's) to-morrow morning, say at 6 o'clock, in a condition requiring, at all events, a little rest.

If I enter Salacoa at this hour, I will have reached the main road without a struggle, can let my troops rest in a good position, front to the south, thus covering Talking Rock, and later on can move at will to the south or over Bad Mud-Hole or Pine-Log P. O., and gain the valley of Pine-Log Creek.

My brigade will have had eight hours' rest by midnight and sufficient food, and if it break camp then we can reach Salacoa by 4 o'clock.

With the main body I will take the road over Kelley's S. A. and Ch. and Venable's, the train moving over Calhoun, Spring Camp Ground to Large Spring (north of Salacoa).

To cover the flank by infantry a proper parallel road is wanted. That over King's Mill, Graham's to Slaughter's is too far distant. For the night-time it will be sufficient to have a little cavalry there, and at dawn further steps can be taken by sending out detachments from the main body.

For the very improbable case of the disturbance of the march by the enemy before Salacoa is reached, I will not attempt to retreat to Mills, but will incline the train in advance toward the road leading from Venable's over Spring Camp Ground to Calhoun.

3. At 9 A. M. I collect the staff-officers and independent commanders, and give them the following instructions:

"According to reports, there is a hostile garrison in Rome; its cavalry patrols reconnoitred as far as this point and Adairsville yesterday.

It will therefore be advantageous to gain the main road Rome-Talking Rock very early to-morrow instead of at noon.

"I have selected Salacoa as objective point. It lies seven miles from here. We will break camp at midnight and march without halting, and will therefore arrive at 4 A. M., and then rest for some time in a position facing south.

"The *main column*, including the 1st infantry, the battery and the two battalions of the 2d Infantry, will march over Kelley's and Venable's to Salacoa.

"*Advance-guard*, a battalion of the 1st Infantry.

"*Rear-guard*, a company of the 2d Infantry.

"The entire *train*, together with the ammunition-wagons of the infantry and the reserve ammunition of the battery, will march under convoy of a

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battalion of the 2d Infantry, without halting, over Calhoun, Spring Camp Ground, to Large Spring (north of Salacoa).

"The squadron of cavalry will be subdivided as follows:

"Two sections with the advance-guard, one section with the rear-guard, a patrol thereof we placed under the orders of the commander of the battalion guarding the train.

"One section with the main body under my personal orders.

"The regimental commander and the commander of the squadron of cavalry will designate the commanders of the detachments."

As soon as this is done, and the respective officers have reported, I proceed:

"*Major A* (*commandant of the advance-guard*):

"As soon as the march begins you will send, to cover the right flank, a section of cavalry on the road toward Adairsville as far as Bowden's Church. From that point you will march over Graham's to Slaughter's and then reconnoitre toward Adairsville. As soon as the infantry of the advance-guard reaches Salacoa, I will send the section of cavalry of the main body toward Adairsville.

"As you pass Venable's detach a company to that point, which will remain there till the brigade has passed, and will then join the rear-guard.

"On arriving at Salacoa take up a good position to the south of the village; the distillery and the church will probably furnish good points."

"*Captain B* (*commanding the rear-guard*):

"A patrol of the section of cavalry placed under your orders must remain at the eastern entrance of Mills's for an hour after your departure, to prevent any one from passing out; it will then follow you.

"Punctually at midnight the *points* of the infantry of the advance-guards of both columns will be set in motion.

"The preparations for the march, as well as the march itself, must take place quietly, without loud command, bugle-call, or beat of drum.

"I have retained the three wagons from Mills's, which were used for carrying the provisions in camp.

"We will take them with us for the purpose of picking up stragglers; they will be placed at once under charge of the commandant of the rear-guard; will precede the latter, and if, in case of attack, they are in the way, will be thrown aside.

"I will be found at the head of the main column."

Shortly before setting out, I give the following directions to the commandant of the train:

"In the very improbable case of an attack before we reach the main road

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Rome-Talking Rock, you will ride with the train toward Calhoun, and halt after crossing the railroad. A half-battalion remains at Calhoun in this case, to await the main column."

NOTE.—The *rôle* of the commanders of the train, the advance and rear-guards, and the section of cavalry ordered over Graham's, would be subject-matter for problems for subaltern officers

60. FOR CAPTAINS OF INFANTRY.

Map VIII. Atlanta Campaign III.

Situation.—The advance-guard of the Army of the Tennessee has possession of the passage at Hopkins's Mill; right wing at Formby's, center between Formby's and Gray's, left wing near Gray's.

Our 4th Army Corps occupies the heights of Zion Church and Perry's.

The Brigade Longstreet of our Eighth Corps stands at Brown's, the 1st Light Cavalry Division east of Whittock's.

Problem.—The following order was issued at 9.30 A. M.:

"The 1st Light Cavalry Division will proceed over Brown's and take position on the plateau near McGinnis's, which furnishes good positions for batteries, and threatens the right flank of the advancing Army of the Tennessee.

"The Brigade Jackson, on the march from Kingston, is also directed on McGinnis's.

"Brigade Longstreet will occupy the western border of the pine-woods, from McGinnis's around to Jones's, which last-named point is being occupied by the Fourth Corps. The Brigade Artillery will join the Corps Artillery reserve."

You are commandant of the Brigade Longstreet, consisting of—

The 15th Mississippi Regiment,
The 77th Alabama Regiment, and
The 5th Battalion of Maryland Rifles,
} Seven battalions.

Subject-matter of the Solution.—Occupation of the pine and oak woods:

1. Estimation of the relations of the ground.
2. What considerations guide you in the occupation of the woods?
3. What orders will you give?
4. The brigade sets out from Brown's at 9.30; how will it be grouped at 10.15?

At 10.45? (Tracings.)

Solution.—1. The woods consist of pine and oak timber without underbrush; are open and passable by infantry bodies; the cross-roads have sufficient breadth for sections to pass. The edge is a sharply marked zigzag,

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and offers good cover for sharpshooters, and permits of a good view to the front. Reserves find, in ravines and behind ridges, cover against artillery-fire from the heights near Formby's. The plateau near McGinnis's offers a good point of support; guns placed there enfilade the entire field of attack lying in front of the woods.

2. The flanks are protected by the occupation of the heights at Jones's and Perry's and the plateau at McGinnis's. The salient angle near Jones's is, however, the weakest part of the line, because it lies lowest, and is exposed on account of the covered approach furnished by clumps of trees and brush in front.

The left wing is the strongest part, because the ground to be passed over by the enemy is lower there, and from the plateau near McGinnis's the troops may effectively aid in the repulse.

I will take for the occupation of the woods four battalions, assigning each to a section of the border. The sections lying to the left will be greater than those to the right.

The strong three-battalion reserve I will place on the ridge on the road from Jones's to Hays's, a little back from the edge of the woods, but centrally placed and under cover.

The battalions of the first line must go around the reserve position in case of retreat.

Since the forest is open and passable, I propose to bring on the reserve only after the attacking party has entered the woods and been thrown into disorder, but then with overwhelming force.

3. The staff-officers and company commanders are assembled, and I give them the following orders :

"The Fourth Corps has occupied the heights at Jones's and Perry's, as well as the plateau of Zion Church.

"Our brigade is to occupy the woods below Perry's.

"The brigade Jackson comes on the height near McGinnis's, hence on our left wing ; also the First Light Cavalry Division has been directed to that point.

"For the occupation of the forest the following are the orders :

"The 15th Regiment will constitute the reserve, and take post on the ridge at a point to the west of the turn of the road, between Jones's and Hays's.

"The 77th Regiment and the battalion of rifles will occupy the border. The battalion of rifles, constituting the left wing, will occupy the 'pine-woods,' and look up on the left the contact with the Brigade Jackson. The commandant of the 77th Regiment will designate a battalion for the defense of the section of forest projecting near Jones's, and with the other two bat-

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talions occupy the border between these two sections, keeping at hand a small special reserve.

"In case retreat is necessary, it should be conducted as far as possible so that the field of action for the reserve is free. As the forest is open and sufficiently passable, I will attack the enemy only after he has entered the forest and been thrown into confusion, but then suddenly and with all my strength.

"The advance of the reserve should be the signal for all to press forward again to the border.

"At Brown's, a field hospital is being erected. The battalions will retain their men detailed to carry the wounded, and send the latter directly to the field hospital, passing around the position of the reserve. The battalion ammunition-wagons will remain in the camp at Brown's. I will myself order the reloading of the ammunition-wagons.

"Colonel (of the 77th), give orders for the advance of your regiment; then we will ride together along the edge of the woods.

"Behind the 77th marches the 15th Regiment to the position assigned to it. Later on, I will remain in its vicinity. In order that the march of the 77th Regiment may continue uninterruptedly, the battalion of rifles will march around the eastern edge of the forest."

61. For Captains of Infantry, Artillery, and Cavalry.

Map II. Sherman's Marches and Atlanta Campaign II.

Situation.—Our army: The Fourth Corps at Cohen's Mill, covering the bridge to Rome; the Fourteenth and Fifteenth Corps, the 1st, 2d, and 3d Divisions of the cavalry reserve, and the 1st Illinois Cavalry Division, in and near Rome; the Seventeenth Corps, at Nannie P. O.; the Twentieth Corps and Upton's brigade of the Fourth Corps near Cedar Bluff, the main body moving down the valley of the creek from Collinsville.

The enemy: Right wing (Hood's army) on the road from Cedartown to Wam's Valley; the First and Second Army Corps on both sides of the proposed railway-grade; the advance-guards on the line Wam's Valley—Cave Spring—Spring Creek Post-Office.

A brigade of six battalions of infantry and one battalion of rifles, to which three squadrons of cavalry and one field-battery are attached, have arrived from Villanow in Resaca and Calhoun to cover there the bridge over the Oostenaula.

The next day, the brigadier-general in command was informed that a hostile column, some four to five thousand strong, and furnished with artillery and cavalry, arrived in an exhausted condition in Allatoona from Atlanta between 4 and 5 P. M., and encamped there.

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The brigadier-general does not consider it probable that this column will turn to-morrow from Allatoona toward Calhoun, but will, on the contrary, attempt to join the main body of the enemy in the valley of the Tallapoosa over Euharlee-Cedartown; and even in case it has orders to advance against Calhoun, or receives them during the night, it will probably first take Euharlee or Kingston, in order to take up a position on the road Calhoun-Van Wert, thus covering its base.

Problem.—The brigadier-general decides to oppose this column to-morrow at Kingston, and to attack, leaving one battalion of infantry to cover the bridge of Resaca, and one section of cavalry to observe the road Calhoun-Allatoona.

At 9 P. M. he assembles the staff-officers, the mounted captains of infantry, the battery and squadron commanders, explains the situation, discloses his views and intentions, and issues the necessary orders for breaking camp and advancing, which will take place at 11 P. M.

Subject-matter of the Solution.—Dispositions for the march toward Kingston:

1. Estimation of the relations of the ground.
2. Leading thought in the plan of action.
3. The orders issued, and the message to the division commander at Nannie P. O.
4. Tracing of the position of the troops four hours after breaking camp.

62. For Field-Officers.

Map VIII. Atlanta Campaign III.

Situation.—The North Corps, on the evening of September 1st, had its advance-guard at Huntsville, its main body north of Wammock's. General S had followed those troops of the enemy which had fallen back on Allatoona, with the 9th New York Regiment, the 34th Ohio Regiment, the 2d Battalion of Maryland Rifles, the 3d Georgia Cavalry, and the 3d and 4th Batteries, 1st Regiment Missouri Artillery. But, as it turned out that the enemy had retired on Allatoona with only one cavalry regiment, two batteries, and a few battalions, the 9th New York Regiment had returned to the main body of the army corps on the afternoon of September 1st.

General S, with the 1st Battalion of the 34th Regiment and the 1st squadron of cavalry, had established outposts on the line Rowland's Mill-Wagoner's, Col. Ryle's, and with the 2d and 3d Battalions, 34th Regiment, and both batteries, had encamped near Raccoon Church. The battalion of rifles and three squadrons of Georgia Cavalry had encamped at Sligh's Mill,

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taking their own precautions for security. Opposite these troops the enemy held Allatoona, while the main body of the enemy's troops had retired along the road toward Dallas, and was halting at the Potash Works.

The commanding general has ordered for the 2d of September that the troops will set out on the march at 5.30 A. M., to continue the pursuit of the enemy. Advance-guard and main body were directed on the Potash Works; General S was to throw the troops of the enemy, which had been forced to Allatoona, in a southerly direction back over Allatoona Creek, and thus separate them entirely from the main body on the road to Dallas.

Problem.—Measures of General S for the 2d of September.

Solution.—The problem to be solved by the north detachment under General S consists in throwing the enemy, who was pushed back to Allatoona, in a southerly direction over Allatoona Creek, and thus separate him entirely from the main body which has retreated toward Dallas.

The enemy's subdivisions at Allatoona will probably endeavor to re-establish, as soon as possible, the contact with their corps, which they have lost. Hence, it must be regarded as probable that they will set out early in the morning of the 2d of September, from Allatoona, to reach the main body over Pickett's Mill, or some more southerly point. In order to meet this movement, the north detachment must endeavor to gain the left flank of the enemy first, and hence advance from Sligh's Mill about in the direction of Cross-Roads Church. The cavalry must break camp earlier, in order to be able to report the probable march of the enemy betimes. The outposts must remain in close contact with the enemy, on one hand, in order to observe the enemy at Allatoona as long as possible; on the other, in order not to make known the movements of the north detachment prematurely. Based on these conclusions, the following order is issued:

Detachment Order for September 2d.

"HEADQUARTERS AT RACCOON CHURCH, *September 1, 1863*, 9 P. M.

"1. The enemy stands with his main body at the Potash Works; weak subdivisions of his were forced back toward Allatoona.

"2. The corps will continue its advance on the Potash Works to-morrow. I have received orders to throw back the enemy's subdivisions at Allatoona in a southerly direction over Allatoona Creek, and separate them entirely from the main body.

"3. The outposts remain for the present, and preserve a close contact with the enemy, following if he retires.

"4. The cavalry regiment, exclusive of the outpost squadron, will advance from Sligh's Mill at 5 A. M. in an easterly direction, and reconnoitre to-

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ward Allatoona, Ackworth, and Pickett's Mill, in order to report any movement of the enemy betimes.

"5. The rest of the troops will advance in the following order on Cross-Roads Church:

"*Advance-guard:* Lieutenant-Colonel C, battalion of rifles.

"*Main body:* Colonel T, 2d and 3d Battalions, 34th Regiment; both batteries.

"The advance-guard will move at 5.30 A. M. from Sligh's Mill on Cross-Roads Church, the main body at 4.45 A. M. at Raccoon Church to Sligh's Mill and follow the advance-guard thence to the Cross-Roads Church.

"6. The large baggage-train will collect at 5 A. M. at Raccoon Church, and halt there on the side of the road.

"7. Dispatches will reach me after 5 A. M. with the battalion of rifles. The cavalry regiment will furnish me ten orderlies as messengers.

(Signed) "S.

"*Major-General.*"

63. For Officers of the General Staff.*

Maps VIII and XI. Sherman's Marches and Atlanta Campaign III and V.†

Situation.—A hostile army, A, is in northwestern Georgia; our own army, B, has its main body on the left bank of the Chattahoochee, below Atlanta, occupying the bridge-head at W. D. Collins's.

The Twelfth Corps had been ordered from northwestern South Carolina to our army at Atlanta, and reached Sandy Spring camp ground to-day, and went into camp there.

The corps consists of two divisions of eight battalions, two squadrons, three batteries, one company of engineers; the corps reserve comprising two 3·5 in. batteries, one 3·2 in. horse-battery, and one regiment of cavalry.

Problem.—At 4 P. M. the corps commander receives the following order from the commander-in-chief of the army:

"The position of the enemy was as follows at noon to-day:

"The main body between Marietta and Ackworth—a division at Lost Mountain, a brigade of the Second Corps at New Hope Church (southeast of Marietta), a half-brigade under the command of Colonel B—is hovering about at New Lebanon Church (northeast of Marietta) and making requisitions.

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* 1871, examination problem at the final examination in the Kriegsschule (War Academy), Vienna. Adapted.

† Atlanta Campaign IV of the War Department maps will answer.

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"The brigade at New Hope Church maintains strong detachments on the plateau at Kator's.

"I intend to include this ground in the bridge-head, hence to have it fortified and occupied, and order this to be executed by the corps under your command.

"The brigade of M, of the Tenth Corps, encamped at A. Young's, will push out to-day after sunset three battalions, a half-battery (9 cm.), and a troop of cavalry, under the command of Colonel F, to Sardis Church, with orders to occupy that and several surrounding points, in order to cover the pontoon-bridge, which Lieutenant-Colonel P, of the pioneer regiment, will construct to-night, according to special instruction from you, for the purpose of crossing the corps.

"As soon as the bridge is passable, which should be by daybreak, your corps will cross over, drive the hostile detachments from the plateau at Kator's, and intrench themselves there, preparatory to the proposed fortification of the plateau.

"Colonel B, of the engineers, is ordered to take charge of this work. He will be at work No. 1, at Cochran's, at 4 A. M., with the 2d Battalion of the 1st Regiment of Engineers and 200 workmen, but will report personally to you for orders this evening. At his request you will place at his disposal the detachments of pioneers, and you will occupy the earthworks temporarily, as fast as they are completed, with guns from the corps artillery and with your infantry.

"Although the enemy up to the present time, as already stated, apparently occupies the plateau only for the purpose of observation, this condition of affairs may change at any moment, especially when your advance is noticed; you must therefore be prepared for a serious engagement.

"The more rapidly you go to work, the less time will the enemy find to send any considerable forces on the plateau; and the less conspicuously the entire undertaking is carried out, the better it will conform to the object which I wish to combine therewith. Remain, therefore, as much as possible unseen, and push out detachments no farther than absolutely necessary.

"Consult with Major-General N, who commands the division at Dickson's (works No. 1–6).

"You can not count on offensive assistance from any other troops, for the entire bridge-head is occupied by the 7th and 8th Divisions only.

"The half-brigade of M will occupy the ground at Sardis Church during the performance of your task. As soon as a few works on the plateau at Kator's are capable of defense, and your position therefore secured for a protracted halt, you will occupy the position at Sardis Church with your troops, and let the half-brigade return to A. Young's.

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"At Pace's Mill and on the plateau at Dickson's (work No. 4) electric telegraph stations are established, at the latter point also a signal station, with which you are probably already in communication.

"Colonel Y will place a signal station in the steeple of Sardis Church.

"The plateau at Kator's is poor in water-supply, the wells in the neighboring farm-yards few in number, the water of the creek of bad quality.

"You will find plenty of barrels at Windship Mill. Fill a large number with drinking-water, and haul them after the troops.

"If you can not collect a sufficient number of wagons for this purpose, have some of those in the provision-train unloaded. For the time the troops remain on the plateau a continual water-train must be organized.

"In the course of the afternoon you will receive further orders from me.

"Should you be forced to retire, you may retreat around the plateau to Pace's Mill.

"Whether the position at Sardis Church is to be vacated, and the pontoon-bridge brought away, you will determine from the situation of affairs; but I desire that you do this only as a last resort.

"I remain to-morrow at Lick Skillet, which is in direct communication by electric telegraph with the stations at Dickson's and Pace's Mill."

Subject-matter of the Solution.—1. Estimation of the relations of the ground.

2. Leading thought in the plan of action.

3. Order for the passage of the corps over the bridge.

4. Tracing of the position of the corps at 9 A. M., accompanied by a short legend.

(The bridge is laid at Powers's. At 5 A. M. the passage can begin.)

64. For Officers of the General Staff.*

Map XXV. Tarnopol.

Situation.—The Eastern Army on the 5th of June at 8 P. M.

The enemy had brought into action on the 5th about five infantry divisions and two cavalry divisions, was defeated, and retired with his main force over Wolezkowcy and Wolocziskbehind the Zbrucz, and his rear-guard holds this river at present from Ozegowcy to Kaniowka.

Railroad at Wolocziskis destroyed, the other passages over the Zbrucz the enemy was unable to destroy.

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* This problem was given to the author by his Excellency Major-General Baron von Sterneck, Superintendent of the Kriegsschule, Vienna, as an example of the work done at the school 1884. *Exercise No. 16.*

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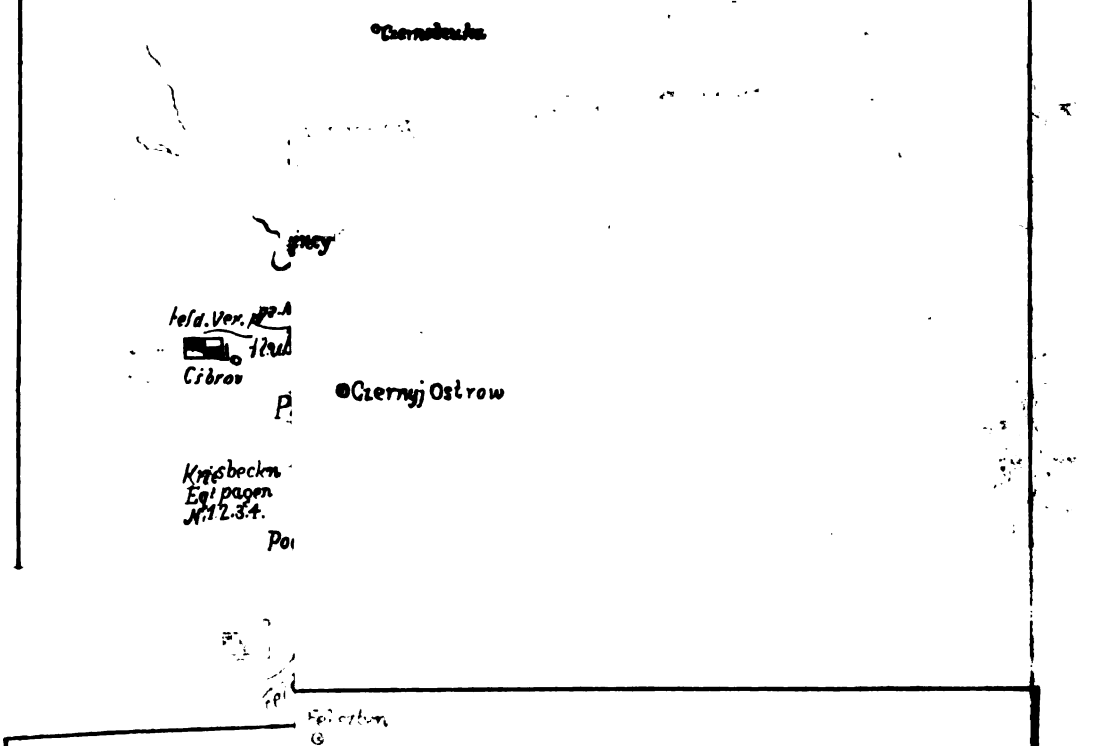

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SKETCH TO EXERCISE No. 18.

To be laid over the General Chart 1 : 300,000.

Situation of the Eastern Army on the 5th at 8 P.M.

The division have the battalions with them, and are quartered,
part in cantonments; the other in camp.

Provisions for the Sixth days are, at the time, being cooked by
the men.

The general equipment normally filled.

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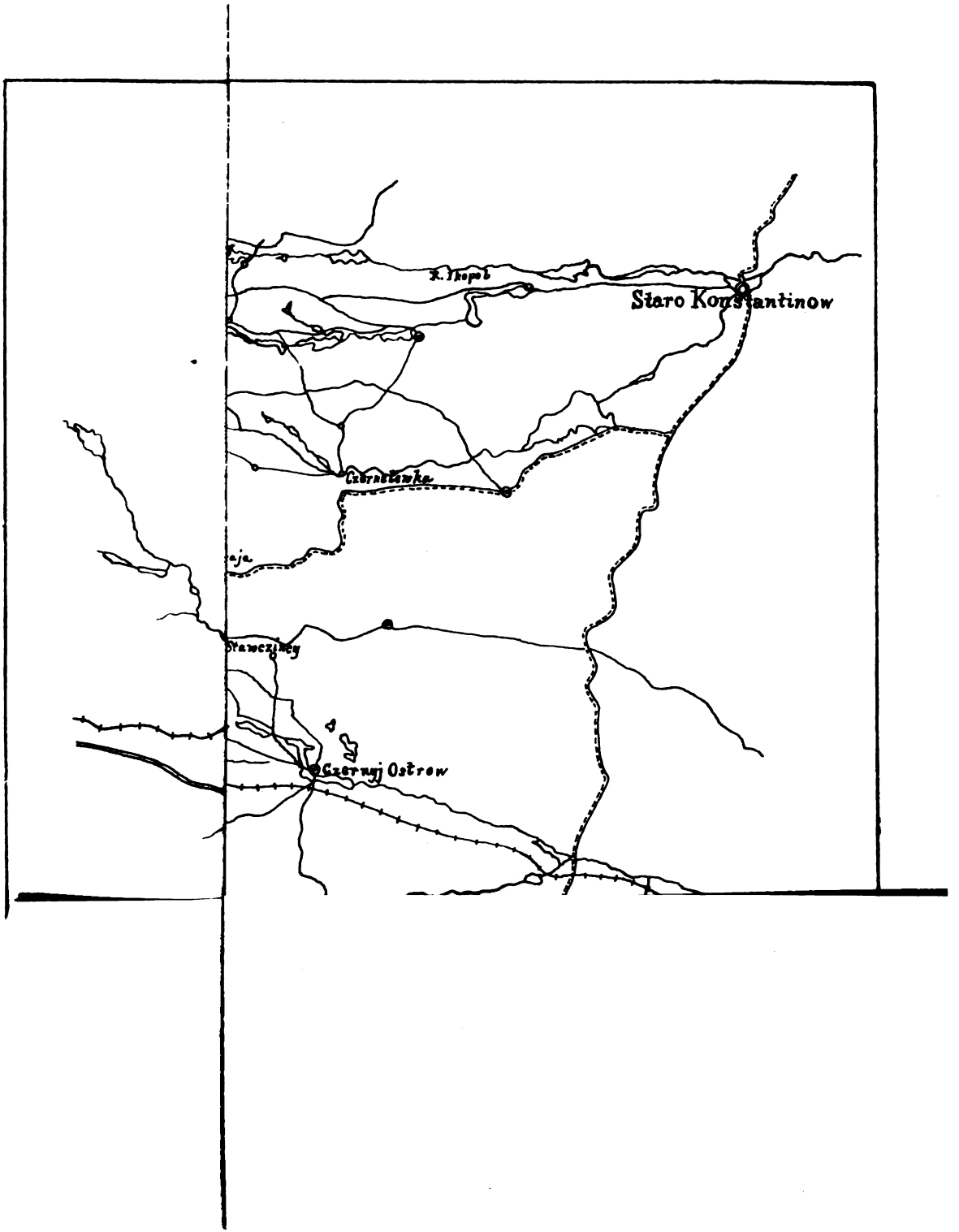

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The First and Third Corps of the Austrian Eastern Army sustained heavy losses in the battle of the 5th, required rest and reorganization, and remained therefore on the battle-field.

The Second and Fourth Corps suffered less severely, and pursued the enemy to the Zbrucz.

In the course of the afternoon of the 5th the large trains of the corps followed on the left bank of the Sereth, and are located as shown in the tracing.

The pioneer companies, with their bridge equipages, were united into a reserve for the army, and temporarily assigned as follows :

The 2d Company, with bridge equipages 3 and 4, to the Fourth Corps ; the 4th Company, with bridge equipages 7 and 8, to the Second Corps ; and the remainder is on the right bank of the Sereth.

Problem :

HEADQUARTERS OF THE EASTERN ARMY, KAMIONKI, *June 5th*, 7 P. M.

General Orders, No. 100.

Order for the pursuit of the enemy on the 6th of June.

1. Enemy suffered a severe shock, retiring with main body over Wolezkowcy and Wolocziśk behind the Zbrucz, which his rear-guard holds from Ozegowcy to Kaniewka ; and presumably took the road toward Starokonstantinow.

2. The commander-in-chief of the army proposes, by an energetic pursuit to force the enemy from his line of retreat to Starokonstantinow.

3, Accordingly, on the 6th, the order of pursuit will be as follows :

The 6th Cavalry Division, with the 9th Cavalry Brigade and the cavalry of the First Corps, will break camp at 3 A. M., and advance with the main body over Szezasnowka, in the direction of the road between Kupel-Zozulenskaja, and clear up the country as far as the line Szarlaewka-Karczowka-Czernelewka. The Fourth Corps will break camp at 3 A. M. and force the Zbrucz between Nowaja Grebla and Wolezkowcy, and will press on to Kupel. The cavalry of this corps will rejoin it.

The Second Corps will break camp at 4 A. M., and will force the passage of the Zbrucz between Wolezkowcy and Golochwasty, and press on to Gonorowka. The cavalry of the Third Corps will be assigned to this corps, and must enter Kamionki by 3.30 A. M.

The 3d Regiment of Lancers, with the cavalry of the Second Corps, will break camp at 3 A. M. and advance with the main body to B. Bubnowka and clear up the country to the line Stawczincy-Czernyj Ostrow-Felsztin.

The First and Third Corps at present rest ; but from 5 A. M. on will hold themselves in readiness for the march, to support, when required, the Second or Fourth Corps.

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4. Supplies by requisition :

The Second Corps in the district on both sides of the road, northward to the line Wolezkowcy-Kurilowka-Gonorowka, including these villages.

The Fourth Corps from this line northward to Awratin-Bogdanowka-Popowcy, including these villages.

The 6th Cavalry Division northward from this line, in the entire space covered by its advance.

The 3d Regiment of Lancers, the entire space passed over by it.

The two last-named cavalry bodies will see that the results of their requisitions are carried to the lines of march of the Fourth and Second Corps.

As a measure of precaution, in the event of the requisitions proving insufficient, the large trains will be carried along in rear of the troops : that of the Second Corps over Woloczisk ; that of the Fourth Corps over Ozejowcy-Tachnowcy ; and that of the 6th Cavalry Division over Szczasnowka-Bazilija.

5. The headquarters of the army will remain in Kamionki till noon on the 6th. N. N.

Subject-matter of the Solution.—1. Based on the orders for the Eastern Army, it is required to compose the orders for the Fourth Corps.

2. Dispatch giving the situation of the Fourth Corps (with tracings), on the supposition that the enemy was everywhere defeated, and that the Fourth Corps reached Kupel.

WORKS OF REFERENCE.

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APPENDIX.*

1. For Subalterns of Artillery.

Map II. Atlanta Campaign II.

Situation.—The 1st Division of Infantry is moving from Cassville to Adairsville *via* Hooper's and Barren's. The troops of our advance-guard occupy the crest just north of Hooper's; Batteries No. 1 and No. 2 are in position 500 yards northeast of Hooper's, on the height north of Seals's.

The enemy appears to occupy the line extending from Hall's to a point on the main road northwest of Barren's; he has batteries to the northeast of Hall's, and to the west of the main road Cassville—Barren's—Adairsville.

You are commandant of Battery No. 4, marching with the main body of the division. The battery is debouching from Cassville at 10 A. M.

Later, the following order reaches you:

Problem.

"Height north of Seals's, *June* 10, 1888, 10 A. M.

"You will proceed with your battery to the left of the batteries of the advance-guard, now in position 500 yards northeast of Hooper's, on the height north of Seals's, and endeavor to silence the enemy's artillery, opening fire as soon as you arrive in position, beginning by firing comparatively slowly. The enemy has batteries northeast of Hall's and west of the main road Cassville—Barren's—Adairsville.

"Battery No. 3 is ordered to follow you and take up a position on your left.

"J. C. T.,
"*Chief of Artillery, 1st Division.*"

Subject-matter of the Solution.—1. When and where does this order reach you?

2. Normal order of march of the two batteries before the receipt of the order.

* The problems here given were adapted from those in use at the École supérieure de Guerre, France.

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3. Estimation of the ground with reference to the problem.

4. Description of the march toward the position; coming into position; description of the position; disposition of pieces, caissons, reserve, etc.; hour of occupation.

5. Conduct of the firing; kind of projectile used; direction of fire; hour of commencing the firing; supply of ammunition; changes of position.

6. Tracing of the normal order of march of the two batteries at 10.10 A. M.

Tracing of the position of the battery at 11 A. M.

Problem, continued.—At 11 A. M. the battery receives orders to move, with the other batteries of the division, on the southern border of the plateau northwest of Barren's, to a point about 600 yards to the west of the road Hooper's-Barren's, to terminate the artillery combat.

Subject-matter of the Solution, continued.—1. Description of advance, and of position occupied; hour of occupation.

2. Conduct of the firing.

3. Tracing of the position.

Problem, continued.—The moment the first lines of the 2d Regiment pass Hooper's, the group of batteries receives orders to attack the heights near Hall's, the direction of the attack being across the plateau north of Underwood's and Grizzle's.

Subject-matter of the Solution, continued.—1. Description of advance; occupation of position; profiles of ground in front of position.

2. Conduct of the firing.

3. Tracing of the position.

Problem, continued. — At 1.30 P. M. the height at Hall's is taken, and Battery No. 4 receives orders to move to the east of this point, and pursue the enemy, who is retreating in the direction of New Hope Church.

Subject-matter of Solution, continued.—1. Estimation of the ground with reference to the problem.

2. Leading thought in the execution.

3. Description of advance and occupation of positions.

4. Conduct of firing.

5. Supply of ammunition.

6. Tracing of position at 2 P. M.

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2. For Subalterns of Artillery.

Map II. Atlanta Campaign II.

Situation.—The 1st Division of Infantry is moving from Adairsville to Cassville, *via* the height northwest of Barren's and Hooper's.

The enemy appears to occupy the height northwest of Barren's, east of the road. Our advance-guard is deploying on the heights 1,000 yards west of this height.

Problem, a.—Required the orders and directions given on the 4th of March, 1888, by the general commanding the advance-guard, to the commandant of Battery No. 1 marching with the advance-guard.

The battery is to move directly to the heights bordering the West Fork of Two-Run Creek, on the west of the enemy's position, to the northwest of Barren's in order to bombard the enemy's position and then to rake the valley of the West Fork of Two-Run Creek; it will open fire immediately after its arrival in position.

This order for the battery to come into line is sent from the heights west of the enemy's position at 10 A. M.; at this moment the battery is passing Wright's.

Problem, sub. a.—Supposing the orders issued required the action of the battery commander:

Subject-matter of Solution.—1. When and where does the battery commander receive this order?

2. Estimation of the ground.

3. Description of advance into position; description of the position; hour of occupation.

4. Conduct of the firing; kind of projectile used; direction of fire; hour of opening fire; supply of ammunition; changes of position; hour of ceasing firing; profiles of the ground.

5. Tracing of the normal order of march with one battery in the advance-guard.

6. Tracing of the position west of the creek.

Problem, b.—Required the wording of the orders, given by the general commanding the advance-guard to the battery commander and received at 11 A. M., to cease firing and to move on the height south of the enemy's position to the point where the foot-path from Ogres's crosses West Fork of Two-Run Creek, to fire on the enemy's position on the crest near Branson's Mill.

At this moment the regiment composing the advance-guard is in posses-

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sion of the height northwest of Barren's. A detachment occupies the farm of Underwood, about 1,500 yards northwest of Hooper's.

Problem, sub. b.—Supposing the orders issued, required the action of the battery commander:

Subject-matter of Solution.—1. Military estimation of the ground.

2. Leading thought in the execution.

3. Description of advance into position, description of the position, hour of occupation.

4. Conduct of the firing.

5. Tracing of the position.

Problem c.—At 11.20 A. M., Battery No. 1 is joined by the batteries of the main body, which form on its right; it passes again under the orders of the chief of artillery of the division.

Required the orders of the chief directing the battery to direct its fire against the enemy's batteries, which have taken up a position on the heights to the northeast of Hooper's, on the hill above Seal's.

Problem, sub. c.—Supposing the orders issued, required the action of the battery commander.

Subject-matter of the Solution.—1. Description of change of position.

2. Conduct of the firing.

Problem d.—At 2 P. M. the group of batteries receives orders to prepare to attack the position at Hooper's and the Hill above Seal's.

Required the wording of the orders.

Problem, sub. d.—Supposing the orders issued, required the action of the battery commanders.

At three o'clock the positions are taken.

3. For Subalterns of Artillery.

Map II. Atlanta Campaign II.

Situation.—The 1st Division of Infantry is on the march from Cassville to Adairsville, *via* Hooper's and Barren's. Our troops are deployed on the line Hooper's, Ogres's, the 2d Regiment on the right of the 1st. Batteries No. 1 and No. 2 have taken up a position on the hill east of Branson's Mill.

The enemy appears to occupy in force the hill one mile east of Hall's and the heights north of Barren's; he has batteries to the northeast of the hill east of Hall's and to the west of the heights north of Barren's.

Problem a.—Required the orders and directions given on the 19th of July, 1887, by the colonel commanding the artillery of the 1st Division of

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Infantry, to the commandant of Battery No. 4, marching with the main body of the division.

Battery No. 4 will move immediately (with Battery No. 3) on the southern border of the plateau north of Barren's, to take part in the artillery combat. It will open fire as soon as it arrives in position. Batteries No. 1 and No. 2 will place themselves on its right.

The order for the battery to come into line is delivered to Battery No. 4 the moment it arrives at Hooper's; it was sent from this point at 10.25 A. M. At this hour the battery is debouching from Cassville.

Sub. a.—Supposing the orders issued required the action of the battery commander.

Subject-matter of Solution.—1. When does the battery commander receive this order?

2. Estimation of the ground.

3. Description of the advance into position; description of the position; hour of occupation.

4. Conduct of the firing; kind of projectile used; direction of fire; hour of opening fire; supply of ammunition; changes of position; hour of ceasing firing; profiles of the ground.

5. Tracing of the normal order of march with two batteries in the advance-guard.

6. Tracing of the position taken up.

Problem b.—The artillery combat not terminating to our advantage, the general commanding the division decides to give up the combat, and retire behind the heights to the northeast of Hooper's.

Required the wording of the orders given to Battery No. 4 to take up a position on these heights near Branson's Mill, to cover the rallying of the first lines of the infantry and to hold the enemy, who might gain the crest north of Hooper's by the field-road over the plateau and the West Fork of Two-Run Creek.

Sub. b.—Supposing this order issued, required the action of the battery commander. The order is received at 12.50 P. M.

At 1.50 P. M. the enemy gives up the pursuit.

Subject-matter of Solution.—1. Estimation of the ground.

2. Description of the retreat into position.

3. Description of the position; hour of occupation.

4. Conduct of the firing.

5. Tracing of the position.

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4. For Captains and Subalterns of Artillery.

Map II. Atlanta Campaign II.

Situation.—The 1st Division of Infantry is on the march from Rome to Branson's Mill, *via* Shiloh Church, Kingston, Price's.

Our advance-guard is deployed toward Johnson's; its battery is west of Underwood's, near the road. Our troops will form on the line of heights north of Blyth's, Johnson's Mill, Johnson's.

The enemy appears to occupy the line of heights at the Lime-Kilns and southward; he has batteries on the heights above Crawford's Station and near Lime's.

General object of the operations: To dislodge the enemy from his position by directing the main assault on his right wing.

Problem, a.—Required the orders and directions given on the 23d of April, 1887, by the general commanding the 1st Division of Infantry, to the commandant of the divisional batteries Nos. 2, 3, and 4, marching with the main body of the division.

The group of batteries will move directly to the west of Johnson's Mill to engage the enemy's artillery and prepare the attack on the heights south of the Lime-Kilns.

The battery of the advance-guard will pass under the orders of the commandant of the artillery as soon as the batteries of the main body have taken up their position.

Firing will commence immediately after coming into battery.

The order to move up on the line is dispatched from Kingston at 10 A. M. At this moment Battery No. 2 is at the fork of the road from Wooley's Mill to Rogers's; section of ammunition No. 3 is in its proper place in the column.

Sub a.—Supposing the order issued required the action of the commandant of the group of batteries:

Subject-matter of Solution.—1. When and where does the chief of artillery receive the order?

2. Normal order of march, one battery in the advance-guard.

3. Military estimation of the ground.

4. Description of the advance into position; description of the position; hour of arrival in position; hour of opening fire.

5. Conduct of the firing; kind of projectile used; direction of the firing; supply of ammunition; changes of position; hour of ceasing firing; profiles of the ground.

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6. Tracing of the normal order of march, one battery in the advance-guard.

7. Tracing of the position.

Problem, b.—Required the orders to cease firing, which are given the moment the first line of the 3d Regiment, which crept along the railroad, was climbing the hill north of Two-Run River.

At this moment the group receives orders to move on the heights east of Howard's, in order to force the enemy back on McDonald's.

Sub b.—Supposing the orders issued required the action of the chief of artillery :

Subject-matter of Solution.—1. Military estimation of the ground.

2. Leading thought in the execution.

3. Orders given.

4. Description of advance into position ; hour of arrival in position ; description of position.

5. Conduct of the firing.

6. Tracing of the position.

THE END.

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